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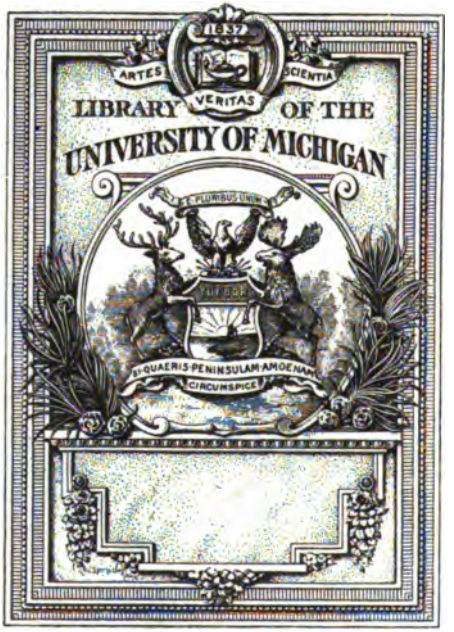
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PRESIDENT'S REPORT FOR 1889–90.

To the Board of Overseers: —

The President of the University has the honor to submit the following Report for the academic year 1889–90; namely, from Sept. 26th, 1889, to Sept. 25th, 1890: —

Lists of the resignations and appointments of the year will be found in the Appendix (pp. 212–217).

The President and Fellows greatly regretted the withdrawal of Mr. Alexander Agassiz from their board at the end of the year. Mr. Agassiz has, however, served ten years as a Fellow — namely, from 1878 to 1884 and from 1886 to 1890 — beside giving the University invaluable service as Curator of the Museum of Comparative Zoölogy since 1875; so that the President and Fellows could only accede to his wish when the pressure of other cares made it necessary for him to diminish his work for the University.

Two members of the Board of Preachers withdrew at the end of the year, — Rev. George A. Gordon of the Old South Church, Boston, and Rev. Theodore Chickering Williams of All Souls Church, New York City. Mr. Gordon began his service with the first Board of Preachers in September, 1886; Mr. Williams had served two years; both gave time and strength to the work with generosity, and with strong faith in the new method of administering the University Chapel. Their places were filled by the election of Rev. Brooke Herford of the Arlington Street Church, Boston, and Rev. Henry Van Dyke, D.D., of the Brick Church, Fifth Avenue, New York. For the year 1890–91 the Board is composed of one Unitarian, two Episcopalians, one Congregationalist, and one Presbyterian. Only two out of the five Preachers are graduates of the University. The interest of the students, and of the community about the University, in the Chapel services increases from year to year.

The most important events of the year were the dissolution of the Faculties of Harvard College and of the Lawrence Scientific School, and the creation of the single Faculty of Arts and Sciences to have charge of the College, the Scientific School, and the Graduate School. These changes were wrought by amending materially statutes 5, 6, and 7, and making corresponding changes in statutes 1, 9, and 12. The amended statutes are printed by the side of the former statutes in the Appendix (pp. 218–220). Beside establishing the Faculty of Arts and Sciences, they provided that a Faculty might delegate any of its powers relating to ordinary matters of administration and discipline to administrative boards consisting of members of the Faculty; and they also created two additional deanships, one for the Faculty of Arts and Sciences, and the other for the Graduate School. These important measures were elaborated by the College Faculty in the course of a discussion which lasted several months, and were reported to the President and Fellows in March last in the form of proposed amendments to the statutes, and of a proposal that under the amended statutes, if adopted, three administrative boards should be appointed within the Faculty of Arts and Sciences, one for Harvard College, one for the Lawrence Scientific School, and one for the Graduate School. The statutes proposed by the Faculty were modified in certain details, first by the Corporation, and then by the Overseers, and thus improved were finally adopted on the 21st of May last. On the 9th of June, in conformity with statute 6 and in execution of the proposal made in March by the College Faculty concerning the appointment of three administrative boards, the President nominated an Administrative Board of sixteen members for Harvard College, an Administrative Board of seven members for the Lawrence Scientific School, and an Administrative Board of ten members for the Graduate School, and the boards so nominated were duly appointed by the Corporation with the consent of the Overseers. Later in the same month four Deans were duly appointed under statute 7 as follows: Professor Charles Franklin Dunbar, Dean of the Faculty of Arts and Sciences; Professor James Mills Peirce, Dean of the Graduate School; Professor Clement Lawrence Smith, Dean of Harvard College; and Professor Win-

field Scott Chaplin, Dean of the Lawrence Scientific School. The new organization being thus completed, so far as the action of the Corporation and Overseers was concerned, the new Faculty voted on June 24th "to delegate with full powers, until the further order of this Faculty, to the Administrative Boards of the Graduate School, the College, and the Scientific School respectively, the enforcement of the regulations of the Faculty relating to each of those departments, and the conduct of all ordinary matters of administration and discipline." The provisional dispositions made by the Faculty of Arts and Sciences for completing the work of the year 1889–90, and the preparations made by it for the work of the ensuing year, are described in the subjoined report of its Dean (p. 38).

The gradual development of this plan of reorganization in the minds of the College Faculty and the arguments for it are fully set forth from the Faculty's point of view in the subjoined report of the Dean of Harvard College (pp. 103–111). Three ends were accomplished by the combined changes: 1. The conduct of the whole body of instruction in arts and sciences, from the most elementary courses to the most advanced, was placed in the hands of one responsible Faculty; 2. this Faculty was delivered from the care of administrative details; 3. each of the three departments in charge of this Faculty was provided with a distinct administrative board, at the head of which is a Dean. The Graduate School has never before been so effectively organized; the Scientific School has been really governed for years by a Faculty which was only a large committee of the College Faculty; and as a matter of fact the College Faculty, or members thereof, have done all the work of developing the instruction in arts and sciences since 1872, whether the courses were intended for graduates, college students, or scientific students. The new statutes express the natural legislative outcome of the development of the whole department of arts and sciences during the past twenty years; and the result is believed to be an organization practically convenient, historically legitimate, and philosophically just. No lines are drawn where natural demarcations do not exist; the selection and conduct of courses of instruction which should be carefully graded in unbroken series from the

entrance of the Freshman to the graduation of the Doctor of Philosophy are committed to the one only competent academic body; and yet all desirable or convenient distinctions of policy or discipline between the College, the Scientific School, and the Graduate School are maintained and even emphasized.

An interesting table of the schools and colleges from which young men have entered Harvard College proper during the past ten years will be found in the Appendix (pp. 221–226). It appears that the number of public schools which from time to time send pupils to Harvard College is slowly increasing. In the ten years 1881–1890, there were ninety-six such schools; in the ten years 1876–1885, there were eighty-two. In the year 1890, thirty-four public schools sent pupils into the College, and of these thirty-four twenty-four were Massachusetts High or Latin Schools. The number of schools and colleges which contribute to make up one of the regular classes in Harvard College is surprisingly large. Thus in 1890, no fewer than 122 schools and colleges contributed the 348 persons who entered the College from schools and other colleges. The largest number sent by a single school was twenty-eight, and only seven schools sent more than ten pupils. From these seven schools 107 persons entered the College. The number of other colleges and universities from which students enter the regular classes of Harvard College is increasing somewhat rapidly. In 1890, the number of these colleges and universities was forty-five, and they supplied sixty-three students. (Compare the report of the Dean of Harvard College, p. 44.)

The following table gives the number of young men who entered Harvard College as regular students in any one of the four classes (special students are not included), in each of the twenty-five years mentioned, from public, endowed, and private schools, from private tuition, and from colleges respectively, with the total number in each year, and the percentage from public schools. The percentage from public schools is unfortunately diminishing; but the percentage from colleges and universities is increasing, and the reduction in the percentage from public schools is almost accounted for by the increase in the percentage from colleges. On the whole, the private

schools have gained on the public schools and the endowed schools during the past twenty-five years. This is particularly the case in cities, as for example in Cambridge, Boston, New

Year.	From Public Schools.	From Endowed Schools.	From Private Schools.*	Private Pupils.*	From Colleges.†	Total.	Percentage from Public Schools.
1866	45	38	21	36	4	144	.3125
1867	42	41	39	47	7	176	.2386
1868	39	34	30	38	5	146	.2671
1869	60	47	22	26	4	159	.3773
1870	75	41	33	41	8	198	.3787
1871	70	44	42	39	8	203	.3448
1872	50	66	30	30	7	183	.2732
1873	72	66	37	46	6	227	.3171
1874	54	57	25	46	18	200	.2700
1875	80	79	32	53	14	258	.3100
1876	51	75	35	49	15	225	.2266
1877	86	64	31	46	12	239	.3598
1878	80	74	36	28	14	232	.3448
1879	72	72	47	38	16	245	.2938
1880	69	67	41	42	14	233	.2961
1881	69	65	25	48	23	230	.3000
1882	82	70	51	53	25	281	.2918
1883	65	85	62	36	20	268	.2425
1884	63	75	73	37	38	286	.2203
1885	73	71	63	30	27	264	.2765
1886	96	65	70	36	35	302	.3179
1887	78	78	78	33	43	310	.2516
1888	94	77	69	31	60	331	.2840
1889	98	68	99	33	54	352	.2756
1890	95	86	82	54	85	402	.2363

York, Philadelphia, Chicago, Cincinnati, and St. Louis. In all these cities private day-schools of high grade have been successfully established in the face of free public schools.

A table which shows the ages at which the Freshmen entered the College in every year from 1856 to 1890 in-

* The discrimination between private schools and private tutors is not accurate. The number of private pupils as given in the table is a little too large. When a candidate who was prepared at a school or college is rejected in June, he sometimes studies three months with a private tutor and is admitted in September. He then counts on the College admission record as a private pupil.

† Beginning in the year 1881, students have each year entered the regular classes of Harvard College from other departments of the University. Thus, in 1889, twenty-one such students entered the College, and in 1890, twenty-two.

clusive is printed in the Appendix (p. 227). Persons who entered with advanced standing are included in the table by placing them in the year in which they would have entered the College had they begun as Freshmen. The last three years are, therefore, necessarily incomplete; for persons who hereafter enter with advanced standing are still to be incorporated into those classes. The average age given in the last column but one is not absolutely accurate to days, but is nearly so. It is noticeable in the table that no one now enters under sixteen, and very few over twenty-one years of age; but that the average age at admission, which reached nineteen years ten years ago, has not diminished during the last decade. The College Faculty having formally proposed on March 25th, 1890, to advise parents and teachers that eighteen is a suitable age to enter Harvard College, and having informed the President and Fellows of their intention, the President and Fellows transmitted the proposal of the Faculty, with other proposals from the same body, to the Board of Overseers. On the 4th of June the Overseers passed the following vote, which was in due course received by the President and Fellows and was by them transmitted to the Faculty of Arts and Sciences. "*Voted*, that, in the opinion of the Board of Overseers, the present average age of admission to the Freshman Class — about nineteen years — is undesirably high, and that the actual age of admission might with advantage be reduced, so that, for the great majority of the class, it should be between seventeen and eighteen years." Thereupon the Faculty (June 24th) authorized the President and the Dean of Harvard College to draw up and issue a public circular based upon the votes of the Faculty and the Overseers. The circular issued was in the following terms: —

To Parents and Teachers of boys who intend to enter Harvard College:

In the opinion of all the College authorities the present average age of Freshmen entering Harvard College (about nineteen years) is undesirably high.

While recognizing the fact that unfavorable circumstances necessarily retard, beyond the most advantageous age, the preparation for college of many young men who derive great benefit from a college course, the Faculty believes that boys who have regularly attended

a good school ought to be fully prepared to enter with profit upon their college course by the time they are eighteen years old, or even before that age. The Faculty thinks it unwise, as a rule, for parents or guardians to keep in school boys who are really prepared for college, or to keep out of college boys who have passed the admission examinations, unless because of ill-health or of unusual immaturity of character.

The Faculty respectfully requests the co-operation of all teachers who prepare boys for Harvard College in the effort to reduce the average age of admission.

The adoption by most American colleges — by all the New England colleges except Harvard and Yale — of the practice of admitting school graduates without examination, on the certificates of their schools, does not seem to diminish the resort to the strict admission examinations which are the only gate to Harvard College for candidates for the degree of A.B. The number of applicants increases from year to year. The fullest possible information about the examinations will be found in the Dean's report (pp. 46–57); and in the tables there given can be traced the slow but sure effect of the wide choice of subjects permitted to candidates for admission on the development of instruction in the secondary schools. It clearly appears that the teaching of modern history, modern languages, mathematics, physics, and chemistry is being fostered as never before; but that the amount of change from year to year is not considerable. Only 31 candidates, or 8¼ percent of the whole number, offered the permissible substitutes for Greek in 1890. Three of these 31 persons came from colleges, and five were prepared by private tutors; of one the place of preparation is unknown; the remaining 22 came from the following schools: From the Boston English High School, the Roxbury Latin School, and A. Hale's private school, Boston, four each; from Phillips Exeter Academy and the Brooklyn Latin School, two each; and from the Belmont School, Mass., the Harvard School of Chicago, the Omaha High School, Phillips Andover Academy, White and Sykes's private school, Cincinnati, and the Wm. Penn Charter School, Philadelphia, one each. It is probable that the substitutes for the elementary Greek require of the candidate more

time and labor than the Greek requires; and since the capacity and taste for mathematics and physical science are much less common than the capacity and taste for languages, there is no danger that boys at school will be drawn away from the study of Greek by any but legitimate inducements. The number of different combinations of admission subjects presented by the candidates was larger at the examinations of 1890 than at either of the two preceding examinations, namely: 88 in 1890 against 62 in 1889 and 76 in 1888; but this variety of combination causes no inconvenience whatever to the College, and is of great service to the candidates and the schools.

The College Faculty gave much time during 1889–90 to the preparation of the Announcement of Instruction for the year 1890–91, which was to be the first list of courses of instruction given under the direction of the new Faculty of Arts and Sciences. This Announcement was arranged in a new way, intended to bring out more distinctly than former Announcements had done the ample provision made for graduates in arts or science and other advanced students. In fourteen departments of instruction the courses were grouped under three heads, namely: courses primarily for undergraduates; courses for graduates and undergraduates; and courses primarily for graduates. In three departments the first group was lacking; in one, the last; in two, the first and second; and in three, the middle group. The new Announcement also described more fully than preceding Announcements had done three forms of instruction for advanced students which have been gradually developed by different instructors and departments during the past eighteen years, — the courses of research, the seminary, and the conference.

In making these changes in the Announcement — changes which were of personal interest to most of the instructors — the several departments, each in its own sphere, were obliged to hold consultations, reconcile differences of opinion and practice, and produce an arrangement of courses in each department conformable to the general scheme of the Faculty. The excellent result is prophetic. The department of instruction, — as for example the department of German, of mathematics, or of botany, — is likely to become a more and more

important unit of academic organization within large Faculties. A department in this sense comprises all the instructors in a given subject who are members of the Faculty. These instructors have many common interests, as well as some divided or conflicting interests; and in all matters relating to instruction in the subject with which the department deals, they are the natural advisers of the large and heterogeneous Faculty. The conference is an institution which tends to strengthen and unify a department as an organization; so is the departmental library and reading-room which is now well established in several departments; and so is also the departmental publication fund, which is thus far secured only in three departments, — political economy, the classics, and history.* The development of departmental activity and authority within the Faculty of Arts and Sciences gives assurance that the organization of separate degree-giving schools of particular arts or sciences, such as other American universities have organized, will be unnecessary at Harvard, and that the central Faculty, freed by its subordinate Boards from the charge of administrative details, will be able to treat wisely and efficiently, with the help of its departmental and other standing committees, the fundamental subjects of admission, residence, instruction, aids and honors, examinations and degrees, in the best interests of a body of students soon to be numbered by thousands.

As illustrations of the numerous and important changes made in the nature, arrangement, and description of the courses offered by single departments for 1890–91, there are printed in the Appendix (pp. 228–237) the new announcements of the departments of philosophy, history, and geology, side by side with the announcements of the same departments for 1889–90. But as these illustrations can give at best but an incomplete idea of the work done by the College Faculty in enlarging and rearranging its instruction, the attention of the Overseers is especially invited to the full account given by the Dean (pp. 58–102) of that work, and of the aims and expectations which influenced the Faculty.

* Since the beginning of the current year Mr. Wm. M. Prichard, of New York (H. U. 1833), has given to the department of history a publication fund of $10,000, to be called the Henry Warren Torrey fund.

All the College authorities — Corporation, Overseers, and Faculty — have long been anxious to improve and amplify the training given by the College in those arts which are indispensable in a democracy for gaining a just influence over the public mind and conscience — the arts of writing and speaking with clearness, terseness, and force. To this end, as well as for the development of literary taste and skill, they have endeavored from year to year to increase the amount of instruction in writing English, and to improve the quality of the instruction; they have added to the elementary required courses graded elective courses in English composition; they have maintained a half-course in oral discussion; and for the year 1890–91 they have provided a new elective course in argumentative composition. By successive steps, the instruction in rhetoric and composition has been carried back into the Freshman year (1884–85); the required writing of themes into the Sophomore year (1886–87); and the required writing of forensics into the Junior year (1890–91). The instruction in argumentative composition has been greatly improved by providing more thorough criticism, and requiring the preparation of briefs. These changes in the arrangement of the more elementary work have made the advanced courses earlier accessible and therefore more useful, and have provided a better preparation for them. Further steps in the same direction are doubtless desirable; but much has already been accomplished. Year by year the Corporation has appropriated more and more money to secure the proper criticism and correction of all written exercises; and the increase of expenditures on the English department has more than kept pace with the increase in the number of students. In many elective courses outside of the English department, and particularly in the advanced courses in philosophy, history, economics, and social science, the writing of theses is made an important part of the work. In the various seminaries and conferences, the participants learn to expound systematically to a critical audience the subjects which they have been required to investigate. In the course of instruction in oral discussion the subjects for debate are all fresh topics in political science or in history. Simultaneously, the instruction in ethics, political and social

science, and history has been much increased; so that students may not only be trained to express their own thoughts well, but also may learn what the thoughts of the world have been and are on these great themes. Such are some of the means by which it is hoped to prepare some graduates of the College to deal effectively in later life with public questions.

The last part of the Dean's report (pp. 103–111) is devoted to a lucid exposition of the action which the College Faculty took in 1889–90 on the subject of shortening the College course,— a subject which engrossed the attention of the Faculty for the larger part of five months. The Dean describes in full the action taken on this subject, because it was an important part of the Faculty's work for the year. The Dean also states clearly wherein the proposed action was really new, and wherein it only gave concise formal expression to existing practices. The Board of Overseers not having taken final action on the Faculty's proposals, the future policy of the College on this important subject remains undetermined.

The College Faculty held 36 meetings in 1889–90, and the Faculty of Arts and Sciences 6 meetings, making 42 meetings in 36 weeks of term-time. So many meetings, devoted to the discussion of difficult and interesting subjects, make a serious drain on the time and strength of teachers, and interfere sensibly with their regular work. It is hoped that when the new organization gets into good working order, the number of Faculty meetings can be much diminished.

The number of persons who take second-year honors and final honors does not increase; on the contrary, it diminishes relatively to the number of students. To obtain second-year honors, about half the student's time during the first two years must be given to classics, mathematics, or physics; to obtain final honors, about one third of the student's time during the whole college course must be devoted to the general subject in which honors are sought. These are only approximate estimates; for the requirements for honors vary considerably in the different departments in which they may be obtained. The natural inference from the facts given in the following tables would be, either that a very small proportion of the students wished to specialize their studies to the moderate extent de-

Second-year Honors in—		1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.
Classics	Highest Honors	4	6	7	6	2	5	4	4	5	4
	Honors	18	18	17	7	13	12	9	10	16	12
Mathematics	Highest Honors	4	3	5	2	3	3	1	0	4	1
	Honors	0	2	3	3	5	4	3	2	2	2
Physics	Highest Honors						1	1	0	0	0
	Honors						3	1	2	0	0
Totals		26	29	32	18	23	28	19	18	27	19

Final Honors in—		1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.
Ancient Languages	Highest Honors			1							
	Honors	1									
Semitic	Highest Honors				1						
	Honors										
Classics	Highest Honors	1	2	1	4	1	1				
	Honors	8	8	6	6	4	2	4	4	4	10
Modern Languages	Highest Honors			1			1		1		2
	Honors						1		1	1	1
English	Highest Honors									1	
	Honors					3			1		4
Philosophy	Highest Honors		1		2	1	1				
	Honors	4	1	1					2	3	
History	Highest Honors	1	3	2	1			1	1	2	1
	Honors	2	4	3	3	2	1	3	1	3	2
Political Science	Highest Honors			1	2		1	1	1	1	1
	Honors			1	4	1		4	5	2	4
Music	Highest Honors	1	2				1			1	
	Honors		1		2	1			1	2	
Mathematics	Highest Honors	2	2		1		1		1		
	Honors		2	3	1	1	3			1	1
Physics	Highest Honors	1			1						
	Honors					2	3	2			1
Chemistry	Highest Honors				2		1		1	2	1
	Honors	4	3		1		2	1	1		
Natural History	Highest Honors	1						1			
	Honors	2		2	5	1	1	5	1	2	
Totals		28	21	22	36	17	20	22	22	25	28

manded by the regulations concerning honors, or that the other requirements for both second-year and final honors were in some way unreasonable.

Those distinctions at graduation which require no specialization of studies at all (the three grades of the A.B. with distinction), or only that small amount involved in taking three courses in one subject (honorable mention), are obtained by large numbers of students.

	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.
Persons receiving the A.B. .	182	177	204	195	181	207	206	234	212	282
Summâ cum laude	14	10	9	22	14	19	9	18	14	12
Magnâ cum laude.	32	29	45	43	46	35	46	15	21	47
Cum laude	55	48	42	53	40	56	64	65	48	58
Totals	101	87	96	118	100	110	119	98	83	118
With honorable mention. .	109	87	125	114	92	95	115	120	126	149

It is possible that the existence of these more popular distinctions diminishes the demand for second-year and final honors; and that the Faculty's estimate of the relative significance and value of the different sorts of academic distinction is not the same as the students' estimate. Even within the Faculty there are two opinions about the wisdom of seeking honors, except by young men who mean to teach. For young teachers it is undoubtedly an advantage to have taken honors in the subjects which they aspire to teach.

The number of Special Students in Harvard College has not increased for four years past. The Faculty Committee on Special Students scrutinizes carefully all applications for admission, and refuses a considerable proportion. It is the practice of the Committee to reject candidates not recommended for admission by their former teachers, unless they can be admitted for exceptional reasons which their teachers find to be good. It is believed that this practice affords adequate support to the discipline of the preparatory schools. The

majority of the Special Students are registered as such for only one year. From ten to fifteen percent become regular students. The Committee exercises a careful supervision over all Special Students throughout the year; and has been much aided in this work by the measure which the Faculty took in the spring of 1889 to secure more frequent examinations, the prompter return of absences, and the quicker detection of cases of neglect of duty. On the whole, Special Students are more strictly dealt with than regular students; and it is right that they should be, for they have not given the guaranties which regular students give, either as to scholarship or as to character. They are, however, an important class of students, to whom the College renders useful service.

Under the general direction of the Committee on the Regulation of Athletic Sports, two important and long-sought improvements were made in 1889–90 in the selection and management of the various "teams": 1. None but *bona fide* members of the University taking a full year's work, and none but amateurs by the accepted definition, were allowed to represent the University in any public athletic contest; 2. Freshmen were properly defined to be first-year students, either regular or special, of the College or Scientific School. At the opening of the current academic year another very useful step was taken, — a competent physician was employed to supervise the training. Some improvement was also made during the past year in the business management of the various teams; but much remains to be done in this direction. The improvement was the result of the election of a Graduate Treasurer, under articles of agreement entered into by the various athletic associations of the University in November, 1889, under which a Graduate Treasurer is to be elected every year by the Committee on the Regulation of Athletic Sports, for all athletic associations that use the grounds or buildings of the University. There is such looseness and confusion in the existing methods of purchasing, incurring obligations and accounting, that more than one year will be necessary to establish a proper system. It is the general opinion among those who have examined the

matter that economy and efficiency would be promoted by putting all the money and all the business affairs of the several associations into the hands of the Graduate Treasurer, who should be authorized to employ one general agent or manager besides the bookkeeper provided by the present articles of agreement. The probability is that with good management every sport would be well supported, without any subscriptions whatever unless for expenditures which might fairly be called extraordinary.

A good tendency is manifested towards a reduction in the number of intercollegiate ball-games, it having already been demonstrated in boating and foot-ball that one intercollegiate match is sufficient to maintain all necessary interest in home practice. From the educational point of view, the main object of intercollegiate races and competitive contests is to increase the number of students who habitually take part in manly sports; and the real test of the usefulness of intercollegiate matches is, therefore, the amount of activity in the several sports on the home grounds. The aim of any single large college should always be to produce not one but many competent crews and teams; so that home practice may be better than any attainable outside practice in preparation for the supreme effort. The best number of intercollegiate contests is the smallest number which will maintain a keen interest in each sport. A strict application of this principle would exclude intercollegiate matches between Freshmen.

Mr. Geo. W. Weld's boat-house was finished and equipped in the spring of 1889, and immediately proved to be both popular and serviceable. To regulate the use of this excellent provision, the "Rowing Club" was successfully organized, and its membership fees were more than sufficient in amount to meet all the running expenses of the establishment. The property is held by Trustees; but the management of the Club is in the hands of its members.

In June, 1890, Major Henry L. Higginson of Boston sent a letter to the Corporation (Appendix, p. 238) in which he gave to the University without conditions a tract of land in Brighton (City of Boston), containing about 21 acres of upland and 10 acres of marsh, and expressed two wishes in regard to his

gift, — first, that the ground should be used for the present as a playground, and should be replaced by another playground if required in the future for other uses; and secondly, that it should be called "The Soldier's Field," and be marked by a stone bearing the names of six of his friends who gave their lives for their country in the Civil War, —

JAMES SAVAGE, JR.,	STEPHEN GEORGE PERKINS,
CHARLES RUSSELL LOWELL,	JAMES JACKSON LOWELL,
EDWARD BARRY DALTON,	ROBERT GOULD SHAW.

The Corporation gratefully accepted this munificent and affecting gift, and will count it a privilege to carry out the wishes of the giver. In order to consolidate into one block the holdings of the University on the south side of the Charles River, they immediately bought 12½ acres of marsh which lay between The Soldier's Field and the 70 acres of marsh which were given to the University twenty years ago by Henry Wadsworth Longfellow and a few of his friends. The University now owns an area of about 21 acres of upland and 93 acres of marsh on the south side of the river, with a long frontage on North Harvard St., just across the Brighton bridge, and a right of way to Western Avenue. At a moderate cost per acre the whole of the marsh could be diked, and converted into a garden or park. On the portion given by Mr. Longfellow and his friends, there are certain restrictions as to buildings; on the rest there are no restrictions whatever.

The Foxcroft Club, which was organized in 1889 to maintain reading-rooms, toilet-rooms, and a cheap restaurant in the lower story of the large house on the northeast corner of Kirkland and Oxford Streets, has already proved itself very useful to the poorer students of the University. In 1889–90, the membership was limited to 120, and the average number of students who took their meals at the Club was about 65. These 65 persons paid on the average $2.75 a week for twenty-one meals à la carte. For the current year the membership has been increased to 200, and the Club is full. The prices of food have been a little advanced this year to cover the expenses of accommodating the increased number; so that the average payment per week may rise to $3.00. Some mem-

bers — chiefly those who sleep at their homes — take only luncheon, or occasional meals, at the Club. The objects in view when the Club was started have been fully attained, and for an unexpectedly large number of persons.

At the close of the year 1889–90, a Loan-Furniture Fund was subscribed by a few officers and students of the University, and Seniors who were leaving Cambridge were invited to give furniture to be lent to incoming students. From these sources thirty rooms were supplied with good furniture at an annual rent of $5.00 for new furniture and $1.65 for second-hand, beside a deposit of $2.50 in the case of new furniture, and of 0.65 in the case of second-hand, made as security against damage. The Fund will probably be enlarged during the current year. This is another effort to reduce the cost of education at Harvard College, and particularly to help the new-comer whose means are narrow.

In the interest of the class of students for whom the Foxcroft Club and the Loan-Furniture Fund were established, there is great need in Cambridge of a well-situated building containing a large number of simple rooms which could be let at $50 a year. At present the University has but 25 rooms which are let at $50 or less, the prices including the daily care of the rooms. The building should be practically fire-proof, and should be provided with fire-places, warmed halls, and the best sort of bathing-rooms — namely, asphalt-lined closets supplied with hot and cold water and flexible hose — but it should be as plain, and as easy to keep in wholesome condition, as possible. There are plenty of rooms in Cambridge, suitable for students, at $100 a year and upwards; but comfortable rooms at $50 a year or less are scarce. In order to build up a great university at Cambridge all the conditions of life must be made as favorable as possible for the ambitious student of narrow means. In Memorial Hall or the Foxcroft Club such a student can get cheap and wholesome board; but cheap and wholesome lodging he cannot always find within a reasonable distance of the College Yard.

The Lawrence Scientific School has within three years so added to its numbers that it is larger in the current year than

it has ever been before, since its foundation in 1847. The number of students was 35 in 1888–89, 65 in 1889–90, and 88 in 1890–91, the numbers being those given in the annual catalogues, and being therefore a little below the numbers annually reported by the Dean. There is reason to believe that this growth will continue. The five courses of instruction which lead to the degree of B.S. are all thorough and well-arranged; the admission-examination is within the capacity of any graduate of a good high school; and through the intimate association of the School with the College its students enjoy all the privileges in Cambridge which College students enjoy.

The system of studies in the School is essentially the group system, as distinguished from the elective system; for it is the aim of the School to train specialists of five kinds — namely: civil engineers, electrical engineers, chemists, geologists, and biologists — and each kind needs not only severe mental discipline, but also sound information concerning a definite group of subjects. The teachers are the same teachers who give instruction to College and Graduate students in the subjects composing the five groups.

The Cambridge Manual Training School, built and maintained by Mr. Frederic H. Rindge, provided excellent instruction in 1889–90 for students of the Scientific School in the use of various hand and machine tools; and the arrangement has been renewed for the current year to the advantage, it is hoped, of both Schools.

Two new endowed professorships would greatly strengthen the School, and be of much use in other departments of the University, — one a professorship of theory and practice in motors and machinery, the other a professorship of architecture. The first would reinforce in a very serviceable way the departments of physics, mathematics, and engineering; the second would find its natural allies in archaeology, history, belles lettres, and particularly in the history of the fine arts. In the profession of architecture there will always be need of some men well-trained in history and literature, as well as in the principles of design and the rules of construction. Instruction in the accepted principles of architecture would be just as appropriate for candidates for the degree of Bachelor of Arts

as instruction in the private life of the Greeks or Romans, or in the history of tariff legislation in the United States, or in the morphology of plants and animals.

The eight scholarships in the Scientific School of $150 each, which were established ten years ago for the benefit of graduates of Massachusetts normal schools, had never been all taken in any one year. Indeed, the number of incumbents had been small from the beginning. The Corporation, therefore, in 1889–90 opened them to graduates of any reputable normal schools in the United States, and there is now a prospect that they will soon be suitably filled.

The volume and variety of instruction in arts and sciences offered to graduates increase steadily; and the number of students, and the amount of tuition-fees received from them, increase also, but not proportionately to the increase of instruction.

	1885–86.	1886–87.	1887–88.	1888–89.	1889–90.
Number of students,	72	70	96	95	107
Amount of tuition-fees,	4356.66	6238.33	8397.50	9200.	9240.

The number of graduates of other colleges who come to Harvard University to pursue their studies in arts or sciences has much increased of late years; but many of them register in the College instead of the Graduate School, although they can obtain the degree of A.B. just as well in the Graduate School. Thus, at the beginning of the current year, there were 97 graduates of other colleges registered with the Faculty of Arts and Sciences, but of these only 60 were registered in the Graduate School, 37 being registered in the College — 31 as Seniors, 5 as Juniors, and 1 as a Sophomore. (Compare the report of the Dean of the Graduate School, p. 113). Some of the graduates of other institutions, who enter the College rather than the Graduate School, do so because they think that their chance of obtaining a scholarship, or other beneficiary aid, is better in the College; but others who exhibit this preference are not applicants for any form of pecuniary aid. The studies of the young men are the same whether they are registered in the Graduate School or in the College, and it makes no difference to their instructors where they are enrolled. The Faculty

is chiefly anxious that the wishes of the institutions from which these students come should be properly considered by them in deciding whether to join the College or the Graduate School.

It has heretofore been customary to award each of the travelling Fellowships for three successive years to the same incumbent. In order to give the benefits of a year, or two years, in Europe to a larger number of persons, and to promote among advanced students (whether Bachelors of Arts of Harvard University or of some other institution) the practice of studying for a year, or two years, at this University before going abroad, the Academic Council in May last adopted the method of appointing graduates to travelling fellowships with notice that the appointment was for one year only, or with notice that the appointment would probably not be renewed more than once. Graduates of other colleges may, hereafter, have a better chance of winning these valuable prizes than they have had heretofore; for if they prove their good quality during a two-years' membership of the Graduate School, they may be eligible candidates for a travelling fellowship during one subsequent year. One such appointment was made last spring.

The Dean's cogent statement concerning the proper place and function of the Graduate School (p. 117) is commended to the attention of the Overseers.

The Divinity School deals in a strictly scientific spirit with those branches of philology, archaeology, history, philosophy, ethics, and literature which should interest all educated ministers; and receives students from a considerable variety of Protestant denominations. The Dean points out (p. 123) that within eight years the graduate department of the School has increased in a particularly hopeful way, and is larger during the current year than ever before. The same may be said of the School as a whole; it never had before so many students as it has this year. On the other hand, the proportion of the graduates of American colleges who enter the ministry remains, as for many years past, far too small, considering the influence and dignity of the profession, the keen demand for able and well-trained ministers, and the happy conditions of the educated and faithful minister's life both in city and country.

The School has had two annual deficits in succession, amounting to $2354.78, partly caused by improvements made in Divinity Hall, and partly by new expenses in the library. At present, the fixed charges absorb almost the whole income, so that any extraordinary expense may cause a deficit; but on looking back a few years one finds that the resources of the School are not diminishing but increasing. Thus its income in 1889–90 was larger by $3208.75 than in 1884–85, and larger by $9740.20 than in 1879–80. The Corporation act on the belief that persons will continue to appear from time to time who wish to foster theological studies, pursued with reverence but in perfect freedom, by adding to the endowments of this department of the University.

The recent increase of tuition-fees in the Law School warranted an increase in the amount of instruction offered. Accordingly, arrangements were made in the spring of 1890 to double the amount of instruction in criminal law, partnership, and corporations. An anonymous gift of $1000 a year for five years enabled the Corporation to provide also a new course on the peculiarities of Massachusetts law and practice. An assistant professor was added to the Faculty. The addition to the salary list in consequence of these changes was $3750. Since the School had a surplus of $10,693.93 in 1889–90 without counting the gifts for immediate use, and the increase in the number of students still continues (279 in 1890–91 against 254 in 1889–90), it is clear that still further additions to the instruction can be made for the next year.

The average age of college graduates when admitted to the Law School has been 23 since 1873–74, the average age of non-graduates being 22 (Dean's report, p. 131). The proportion of Harvard Bachelors of Arts in the Law School is increasing; that of Bachelors of other institutions and that of non-graduates are diminishing (Dean's report, p. 130). The practice of entering the School with one year's advanced standing is slightly on the increase, while the practice of obtaining the degree without passing the third year of the course at the School is apparently dying out.

Experience having shown that the existing regulations con-

cerning the admission and continuous registration of special students permitted some persons to maintain a nominal connexion with the School who took no part whatever in its work, the Faculty checked this evil by adopting new regulations as follows: —

"Persons who are not candidates for a degree may enter the School as special students at any time without examination, and avail themselves of its advantages in whatever manner and to whatever extent they see fit. They must, however, if not college graduates, produce certificates of good moral character, and give two references for further information.

A special student who has been in the School during any part of an academic year must, in the regular examinations held at the end of the year, or held in the following September, pass an examination in at least three subjects.

No student, whether a candidate for a degree or a special student, who has not in any year passed an examination in at least three subjects will be allowed, unless by vote of the Faculty, to continue as a special student in the School."

It is believed that these regulations will put an end to an abuse, without interfering with any of the proper uses of the University statute concerning persons not candidates for a degree (statute 10).

The attention of the Overseers is especially invited to the Dean's careful comparison of the condition of the Law School in 1869–70 with its actual state. His description of the library and of the means by which it has been brought to its present admirable condition will interest any one who habitually uses a professional library. Within the period covered by the Dean's survey, the School has had two great benefactors, the giver of Austin Hall, and the founder of the new professorship. It has also received from a considerable number of givers a Book Fund which now amounts to $42,021.25. These benefactions, however, came rather late in the transformation of the School, and were rewards and encouragements, rather than originating impulses. It is to the wisdom and courage of the Dean and Faculty, and to the prompt demonstration of the efficacy of the School's methods which its young graduates have supplied, that the School owes its remarkable development.

The important event in the Medical School during 1889–90 was the completion, at a cost of $35,000, of the laboratories for pathology and bacteriology given by Henry Francis Sears, M.D. The laboratories are spacious, well-lighted, and convenient, but absolutely plain and simple. They were ready for use just when public interest in bacteriology had been greatly stimulated by the bold experiments which German scientists, liberally supplied by their Government with all possible facilities for investigation, have been making in the application of bacteriological discoveries to the practice of medicine. The combination of facilities required for researches like those of Professor Koch seems almost unattainable by any methods as yet developed in the United States. There are needed professorships for research, laboratories, establishments for systematic experimentation on animals, and hospitals for the most careful treatment of human patients; and all these institutions must work together harmoniously for long terms of years, and must be liberally supported without expectation of pecuniary profit, or of immediate tangible results. In the United States these different agencies, which for purposes of fruitful discovery need to act in combination, are maintained, if maintained at all in any one place, by as many different corporations, which are more or less divided in interests, and are quite unaccustomed to act together. Moreover, these different corporations have, as a rule, but scanty resources each for its own immediate object. It must be confessed that the American method of diffused private endowments is, for purposes of medical research, very inferior to the government method as exhibited in Germany, being less prompt, liberal, and patient, and less able to effect the needed combination of resources.

There is no professorship of bacteriology in the Harvard Medical School; the Sears laboratories are not endowed; and the School as a whole can hardly meet its ordinary expenses from year to year. Such resources as the community has placed at its disposal, it uses diligently and with increasing effect.

The Faculty of the Dental School was somewhat changed in 1889–90. Dr. Maurice H. Richardson retired from it, while

Dr. Eugene H. Smith entered it as Instructor in Orthodontia, and Dr. Jere E. Stanton as Instructor in Oral Anatomy and Physiology. At the same time the subject of therapeutics was transferred from Professor Brackett to Assistant Professor Briggs. The teaching staff was also increased by the appointment of four Clinical Lecturers, three additional Instructors, and two additional Assistant Demonstrators.

The Faculty resolved in 1889–90 to establish a three-years' graded course beginning in September, 1891, and they have given public notice to that effect. Except that students will still be admitted to advanced standing on examination, all candidates for the degree will thereafter be required to pass three years in the School. Certificates of study in the office of a private practitioner will no longer be accepted. This action of the Faculty will add materially to the cost of the dental degree, and may temporarily diminish the number of students in the School; but it will raise the standard of the degree and add to its value.

On and after June, 1891, a knowledge of one additional subject will be required at the examination for admission, in accordance with the notice first given in 1889–90. For this reason, perhaps, or because of the increase in the requirements for the degree which takes effect next September, there was this year a sudden increase in the number of the first-year class.

The School had a surplus of $2335.38 in 1889–90, — a surplus a little more than sufficient to extinguish the balance of its debt to the University treasury. Its Subscription Fund now amounts to $8155.85. The very small salaries paid to its teachers were increased a little in 1889–90, and have been again augmented for the current year.

The Bussey Institution lived well within its income during 1889–90, the operations of the year resulting in a surplus of $2473.14. The course of instruction in entomology, which had been temporarily interrupted, was resumed under the charge of Albert H. Tuttle, S.B., M.D. All receipts from the farm, for board of animals and by sale of wood, hay, and sundries, are spent on the farm; and they are sufficient to keep the estate in presentable condition, and to improve some parts

of it from year to year. The Horticultural department gives Professor Goodale important aid in the difficult work of providing flowers out of season by the thousand for the large classes in botany at Cambridge. It also makes unusual and interesting exhibits from time to time at the stated exhibitions of the Horticultural Society in Boston.

The income of the Institution from the Bussey Trust (the Institution receives one half the net income of the Trust after payment of certain annuities) was $8873.06 in 1889–90, which was about $1100 more than the income from this source in 1888–89 or in 1887–88. The investments of the Fund in Boston real estate give a much better return than in 1879–80, when the income of the Institution from the Trust was only $3505.30; but they do not promise soon to yield again the income which the Institution enjoyed from them in 1874–75 — namely: $17,155.92. As a lesson in the vicissitudes to which prudent investments in city stores and offices are liable in the course of fifty years, the experience of the Bussey Institution is instructive.

The Veterinary School and Hospital had a prosperous year — the most prosperous of the seven years of their existence. The Hospital, by receiving only paying patients, was able to meet its own expenses and the excess of the expenditures on the School over the receipts from the School. This favorable result was brought about by adding to the Hospital staff a resident surgeon who gave all his time to the Hospital. The salary list was thereby increased; but more and better work was accomplished; so that the Hospital earnings were larger by $2642.33 than the earnings of the preceding year. Professor Lyman, who is at the head both of the School and of the Hospital, is of opinion that an enlargement of the present building would increase the receipts in higher proportion than the expenses. He states clearly (p. 150) the reasons why the School cannot be expected to grow rapidly, and why it needs endowment. He believes that the School and Hospital should have at least two officers who are not in private practice. From the University's point of view it is very desirable that the School should be a place of research as well as of instruc-

tion, and that the Hospital should not be obliged to confine itself to paying cases; but to accomplish these improvements a considerable endowment — about $100,000 — would be necessary.

In June, 1890, one more subject was required at the admission examination than had previously been demanded; but the grade of the examination remains somewhat lower than that of the entrance examinations at the Medical and Dental Schools. On the other hand, the range of studies is, and always has been, wider in the Veterinary School than in the Dental.

The Librarian (p. 152) and Assistant Librarian Tillinghast (p. 162) call attention to the increasing charges for periodicals and serials at the Library. The heavy cost of these publications diminishes unduly the means of buying books. Yet teachers and advanced students feel so keenly the need of the freshest publications on their respective subjects, that it is probably inexpedient to reduce the periodical and serial list.

The accessions to the Library in 1889–90 were so numerous, that the cataloguing fell behind, and no progress was made on the back work (p. 159). An addition to the cataloguing staff has therefore been made since the beginning of the current year.

To get all fires out of Gore Hall, the Corporation caused the steam-heating apparatus in that building in 1888 to be connected with the boilers in University Hall. An unexpected result of the change has been that the charges for fuel for the Library have been increased 42 percent, although the past two winters have been mild, and no more heat has been wanted in the Library than was wanted before.

The need of a new reading-room has been explained in previous Reports, and has lately been put before the graduates and other friends of the University in published circulars which were issued by a committee of undergraduates. The undertaking is one quite beyond the resources of the Corporation, and it must therefore await the coming of some single benefactor, or the raising of a large sum by general subscription. That a spacious reading-room, accessible in the evening, should be so urgently desired is a sign of University activity. It means that methods of instruction have improved, and that

there is zeal for reading and research. A building slightly detached, north of the present building, but connected with it by covered passages, would best answer the purpose. The whole of Gore Hall could then be converted into a capacious stack, all the books could be properly classified, the delivery-room could be enlarged, and the stacks could be kept cool — to the great advantage of the books — while the reading-room and the work-rooms were kept warm. Excepting the endowment of permanent professorships, this is the most urgent need of the University at this moment.

By the liberality of a few of its friends, the Herbarium was assured last spring of $3500 a year of additional income for five years. Two assistants have already been employed, and every effort will be made to secure for the Curator leisure to carry forward the Synoptical Flora of North America. The Herbarium and the Garden are to share the income of a fund of $2000, which Mr. John L. Russell of Salem, who made the College his residuary legatee, besides making a bequest of $1000 to the Divinity School, desired to have set apart for their benefit (Treasurer's Statement, p. 7). The report of the Curator (p. 165) describes several important accessions to the Herbarium during the year, partly by purchase but mainly by gift. The Herbarium has performed so many services for botanists and botanical institutions in all parts of the world, that it is constantly receiving valuable gifts in return.

The report of the Director of the Botanic Garden (p. 166) gives ample evidence of the usefulness and activity of the establishment, and of the liberality and constancy of its friends. The classes in botany increase with the general growth of the University, and over-tax the resources of the Garden and its greenhouses. The classes open about the tenth of February, and it is a serious task to provide at that season a proper series of flowers in adequate number. The Bussey Institution has been supplying large quantities of flowers for the classes, and can doubtless continue to render this ingenious and interesting service. The proposed Museum of Economic Botany has required much consideration on the part of the Director. Its building is completed, but not yet furnished; many specimens

have been already collected; many others will be purchased during the current year; and the general plan and policy of the Museum have been decided upon (p. 169). By the end of the next academic year the arrangement of the collection will probably be sufficiently advanced to make it interesting both to students and to the public. In some respects the exhibition will be unique. The Director is now absent on a journey round the world in the interests of the Museum.

At the Arnold Arboretum no tree-planting was done during the year, for the reason that the Park Commissioners of the City of Boston had been unable to build more roads and to grade the adjoining slopes in season. The slowness with which the road-plan of the Arboretum has been executed by the City has already retarded by several years the execution of the planting-plans, and has caused the loss of many carefully prepared specimens. When it is remembered that after the planting of the permanent collections many years must elapse before the beauty of the specimens can be fully developed, the long delays in the preliminary work seem the more regrettable. The Commissioners have, however, done some work during the past fifteen months; so that the Director hopes (p. 171) to be able to do some permanent planting during the coming season.

The Director and the Assistant in the Arboretum, Mr. Charles E. Faxon, issued during the year the first volume of a magnificent illustrated work, "The Silva of North America," on which they have been engaged for many years.

The Director of the Chemical Laboratory calls attention in his report (p. 172) to the importance of right methods in the teaching of experimental science in schools, outlines the policy to be pursued in arranging the new mineralogical exhibition in the University Museum, and describes the chemical investigations which have been in progress in the laboratories during the year. The valuable collection of minerals and meteorites has all been removed from Boylston Hall, and been stored in the new Museum. In the course of the current year it is expected that the collection will be rearranged in the new rooms, and the mineralogical laboratories be fully furnished and equipped. The Director has procured almost all the money

needed for this purpose, as well as the large sum required to build the mineralogical portion of the University Museum.

The number of students who make use of the Jefferson Physical Laboratory increases. The Director reports (p. 181) 218 choices of elective courses in physics during the year 1889–90; and it is to be observed that a reasonable number of students pursued the advanced courses. Two summer courses were given in the long vacation instead of one as heretofore, the new one being more advanced than the other. Of the 31 students who attended these courses 22 were teachers in schools or colleges. The increase in the number of candidates who offer experimental physics at the examination for admission to College is highly gratifying to the professors and assistants in the Jefferson Laboratory; for they have given much time for two years to perfecting laboratory methods for elementary students. The Director describes (p. 183) the investigations which were in progress during the year, and again urges in that connection the need of a good mechanic attached to the Laboratory. An effort was made by Mr. Francis Blake to raise a fund of $100,000 for the endowment of research in the Physical Laboratory; but it was only begun when the wide-spread disturbance of commercial credit in the autumn of 1890 arrested it.

The fire-proof store-house and work-rooms needed by the Observatory have not yet been supplied; so that the library, manuscripts, and photographic plates are still in danger of sudden destruction by fire. The 27,000 plates taken since 1885, many of which are unique, ought to be preserved for comparison with similar plates taken ten or twenty years later. Publication secures the contents of manuscripts, and makes the manuscripts themselves not worth keeping. The value of plates on the contrary is not destroyed by the first publication of the results obtained from them, and they should be preserved for future study. The Director's account of the year's work at the Observatory (p. 186) will be found even more interesting than usual. There is something very suggestive in the wide range and adventurous quality of the operations of the Observatory. They suggest that universities may, in the future,

carry on researches in other sciences beside astronomy by detached parties reporting to a home laboratory. Meteorology and geo-physics in general are subjects which could be profitably studied by this method. Governments have heretofore done most of this work; but it now appears that universities can do it also. The publications of the Observatory during the year (p. 193) were numerous and important; and there would have been more of them, had it not been for lack of money to pay for the printing.

The University Museum was completed, ready for its furniture, in 1889–90, as far as the south-western corner-block on Oxford St., and considerable portions of the new structure are already occupied. That portion which is to be occupied by the department of botany has a floor area of 30,000 feet, without counting the halls and stairways, and cost $85,219.55; that portion which is to be devoted to mineralogy has a floor area of 13,200 feet and cost $34,896.23. About 30 percent of the floor area of the botanical and mineralogical sections is given to exhibition-rooms; the rest is devoted to lecture-rooms, laboratories, and storage-rooms. The provision made for instructors and students will be ample for many years to come; and the exhibition-rooms are large enough for the display of type-specimens in proper variety, but not for the display of many specimens of the same type.

The work of the Museum of Comparative Zoölogy is crippled for lack of money. Explorations cannot be carried on; much-needed assistance cannot be hired; cases cannot be built; and the stores of the Museum cannot be opened to specialists; because the funds do not yield income enough to cover any extraordinary expenses. Moreover a part of the income is pledged for several years to come to the repayment of advances made for building. Merely to complete its exhibition collections, as planned, the Museum ought to have an additional income of $10,000 a year for five years.

The period of isolation which the Peabody Museum of American Archaeology and Ethnology has had to endure — like most endowments which bear the name of an indi-

vidual — may fairly be said to be over. Persons interested in the subject are no longer restrained from adding to the very limited resources of the Museum by the impression that it is sufficiently endowed, or that it is primarily a monument to its founder. The year 1889–90 was one of much activity at the Museum, because several friends provided means of productive exploration, or themselves conducted successful explorations in the interest of the Museum. In October last the first addition ever made to the permanent funds of the Museum was received — the generous gift by Mrs. Mary Copley Thaw of Pittsburgh of $30,000 to found the Thaw Fellowship Fund (p. 209). Since that date two fellowships have been provided for the benefit of students of archaeology at the Museum, and American Archaeology and Ethnology have been recognized by the Faculty of Arts and Sciences as subjects in the pursuit of which the higher degrees in arts may be obtained. The Committee appointed by the Overseers to visit the Museum is composed of active supporters of archaeological exploration and research, who work in full accord with the Trustees of the Museum on the one hand and the University authorities on the other. It is obvious from these facts that broader prospects are opening for this interesting department of the University.

An important step was taken in 1889–90 towards the formation of a valuable museum in connection with the department of Semitic Languages and History. In December, 1889, Mr. Jacob H. Schiff of New York, a member of the Overseers' Committee to visit that department, offered the University $10,000 for the purchase of casts, manuscripts, and other objects illustrating Semitic literature and history, on condition that the University provide for the exhibition and care of the collection. This condition was immediately met through the coöperation of the Trustees of the Peabody Museum, who at the suggestion of their Curator offered a gallery 61 feet square in the new part of their building, as a place of temporary deposit for the new collection. Purchases of manuscripts and antiquities began in March, and gifts began to come in. It soon appearing that for systematic and

prompt purchasing it was desirable to have for a time a responsible buyer in Europe, Professor Lyon was commissioned to go abroad for that purpose. He spent nearly three months in London, Paris, and Berlin, and succeeded in obtaining from numerous sources a valuable collection of books, manuscripts, inscriptions, photographs, casts, coins, electrotypes, impressions of seals and tablets, and other objects to the value of about $5000. Reproductions, even of very precious objects, being as a rule inexpensive, after the moulds have once been made, a moderate sum of money has secured a highly instructive and interesting collection.

Under an agreement between the Corporation and the Trustees of the Museum the cases for the collection are in process of construction, and it is expected that by next April most of the objects already purchased or given will be on exhibition.

Many of the most valuable Semitic objects now in the great museums of Europe have never been moulded for reproduction, and the museum authorities are less disposed than formerly to run the risks involved in moulding. Nevertheless permission could probably have been obtained to reproduce many desirable objects both at Paris and Berlin; but Professor Lyon was deterred from entering upon that undertaking last summer by the high cost of the first moulds, and by the lack of exhibition space for the larger objects.

Although this new collection is necessarily arranged for the time being in a provisional, although perfectly safe, manner, it is clear that an important addition has already been made to the archaeological and historical resources of the University, and that around this nucleus very precious materials to illustrate the history and literature of the most remarkable of races will in time be gathered.

The attendance at the summer courses offered by the University during the long vacation continues to increase, and it seems probable that they meet a permanent demand. The students at these courses are almost uniformly very much in earnest, and inclined to work too much rather than too little. The instructors are generally found among the younger officers of the University, who can usually prepare themselves for the

strain of teaching with vivacity every day during from four to six weeks of summer weather, by taking some vacation in June during the period of final examinations. As the classes contain a large proportion of professional teachers, they are very interesting and stimulating to the instructors. For the benefit of the students in these courses — many of whom are persons of small means — the Foxcroft Club was kept open last summer with good results.

The Quinquennial Catalogue was printed in English in 1890 for the first time, except that the abbreviations for all but the engineering degrees were kept in the Latin form, and that the names of learned societies on the Continent of Europe were not translated. A statement by the editor concerning the other changes made in this edition will be found in the Appendix (p. 238).

For several years past there has been a movement among graduates of the professional schools who are not also graduates of the College in favor of an amendment to the Act of 1865 which should extend the right of suffrage for the Board of Overseers to graduates of all departments. The agitation began four years ago in the Association of the Graduates of the Scientific School, but has now extended to all the other Schools. In 1889–90 petitions were sent to the President and Fellows by the Faculty and certain Alumni of the Divinity School, by the Law Faculty and the Law School Association, by officers and members of the Scientific School Association, by graduates of the Medical School, and by the Dental Alumni Association. These petitions were transmitted by the President and Fellows to the Overseers, and were by them referred to a committee, who gave a hearing to persons interested in advocating the change proposed. The final action of the Overseers on the petitions was adverse. During the current year similar petitions have again been presented, supported in some instances by graduates of the College.

Last June the President and Fellows offered the use of all their grounds in Cambridge to the City for twelve weeks, beginning on the Monday after Commencement, in every year till further notice, provided that the grounds should be restored

to the University in the same condition in which they were received. The City accepted the loan of the grounds, but made little use of any part of them except Holmes Field, where evening concerts were given. It was the hope of the President and Fellows that the people of Cambridge, and particularly the children, might enjoy the grounds in summer, and they still cherish this hope, although it would doubtless be necessary for the City to incur some expense for seats and police.

The increase in the amount of tuition-fees and the rents of Walter Hastings Hall — which was finished in December, 1889, at a total cost of $243,215.95 — emboldened the Corporation to raise the salaries of fifteen professors and the Librarian from $4000 to $4500 a year, and the salaries of four Law professors from $4500 to $5000 a year. At the same time they passed a standing vote which fixed the salary of an assistant professor in his second term at $3000 a year instead of $2500. For College professors this is the first increase in the regular salary since 1869. Some improvement was made simultaneously in the rates of compensation to instructors.

In January, 1890, an unknown benefactor paid $200,000 into the Retiring Allowance Fund, doing thereby a good deed of far-reaching influence. On the 31st of July, 1890, that Fund amounted to $242,211.97. Although not large enough to warrant the Corporation in establishing forthwith the system of retiring allowances which they put on record in 1880 as in their judgment a suitable system, it would enable them to provide for single cases of disability, should such occur.

The President and Fellows desire to manage the property of the University in a conservative way, although they mean to spend its whole income for the benefit of the present generation of youth. The Overseers will observe that the year 1889–90 was a favorable one financially considered. There were surpluses in all departments except the Divinity School, Medical School, and Observatory; and in these the deficits were insignificant. Proper payments were made towards the sinking of premiums and the repayment of advances for buying needed lands in Cambridge. The Stock Account, an unrestricted fund, was nursed, and the book valuation of unimproved lands in

Cambridge reduced by $30,037.91. These and similar measures the Corporation habitually take, in the hope of keeping the University property good, and of providing in the fat years some resources for the lean. The permanent obligations of the Corporation for salaries are large; but they are careful to make a fair proportion of their appointments only for one year.

The attention of the Overseers is respectfully invited to the following reports on the several departments and scientific establishments.

CHARLES W. ELIOT,
President.

CAMBRIDGE, 10 January, 1890.

REPORTS OF DEPARTMENTS.

THE FACULTY OF ARTS AND SCIENCES.

To the President of the University:

Sir, — As Dean of the Faculty of Arts and Sciences, I have the honor to present the following report upon the organization and subsequent action of that body at the close of the academic year 1889–90: —

The amended Statutes, establishing this Faculty and giving it the charge of Harvard College, the Lawrence Scientific School, and the Graduate School, having been adopted by the Corporation, were approved by the Board of Overseers, May 21, 1890, and took effect immediately. The Faculties of Harvard College and of the Lawrence Scientific School were thereby dissolved, and their rights, duties, and administrative powers were transferred to the new Faculty of Arts and Sciences; the powers of recommending candidates for the degrees of Master of Arts, Doctor of Science, and Doctor of Philosophy, heretofore exercised by the Academic Council, the administrative authority and duties of the same body under the Standing Rules of the Corporation and Overseers, and the charge of the fellowships and scholarships appropriated for the use of graduate students, also passed to the new Faculty, the Academic Council being succeeded in its deliberative functions by the University Council.

The Faculty of Arts and Sciences, under this reorganization, met for the first time May 27, 1890. As only four weeks of the academic year then remained, they found it expedient to make some provisional arrangements for completing the business of the year, postponing for a time some details of their permanent organization. It was accordingly voted that the administrative work heretofore delegated to the Deans of the Faculties of Harvard College and of the Lawrence Scientific School, and to the Secretary of the Academic Council, respectively, should be conducted by Professors Smith and Chaplin, and, in the absence of Professor Peirce, by the Secretary of the University. The Standing Committees of the Faculty of Harvard College and of the Academic Council were requested to act until further notice. The regulations and standing orders of the Faculty of Harvard College were then adopted, and also such rules and standing orders of the Academic Council as related to the degrees for which that body had

the power of recommendation and to such other matters as had been transferred from the charge of the Council to that of the new Faculty — the adoption in both cases being provisional and having in view the possible future revision of the rules and orders and their closer adaptation to the altered distribution of powers.

With these arrangements the Faculty acted finally upon the announcement of the courses of instruction for the year 1890–91, already well advanced when the reorganization took place and fully described in the report now presented by the Dean of Harvard College. The recommendations for fellowships for the year 1890–91 were also completed, and in order to provide for dealing with possible changes or vacancies the Committee of the Academic Council having this subject in charge was authorized to continue to act during the summer.

In preparation for the work of the new academic year the Faculty then established eleven standing committees, to take the place of committees of the former Faculties and Council, heretofore dealing with the same subject-matter. Then they proceeded, in conformity with the amended Statutes, to delegate to the administrative boards of Harvard College, the Lawrence Scientific School, and the Graduate School, respectively, the enforcement of the regulations relating to those departments and the conduct of ordinary matters of administration and discipline, leaving for future consideration the precise line to be drawn, between subjects on which the Faculty will delegate the power of final action and those over which it will retain, either the power of revision, or the complete jurisdiction. The determination of this line will plainly demand some careful inquiry and perhaps the light of some experience. It is a most important feature of the new organization that it gives the details of administration into the efficient hands of the smaller boards and economizes the strength of the larger body by proposing to reserve it for questions of general policy. Broadly speaking, rules are to be established or approved by the Faculty and applied by the administrative boards. But cases may easily arise in which the interpretation of a rule is as important as the establishment of the rule itself, and in which the Faculty may find it desirable to act directly and not by a delegated authority. It is, moreover, to be learned by time and observation how far the Faculty can wisely exclude from their discussions the special cases in which the life of the University and the needs of its students are most vividly presented. In short, in this reorganization of the administrative bodies the precise point at which there is the greatest economy of force and the least loss of insight and interest is probably to be ascertained by careful experiment.

At the close of the academic year the new Faculty of Arts and Sciences passed the requisite votes, recommending for the degrees of A.B., S.B., A.M., and Ph.D. the candidates who appeared by the record to be qualified therefor. As the vote of recommendation, however, was only the concluding step in work which had been carried nearly to its completion by the lately-existing Faculties or by the Academic Council, it is deemed advisable that this subject should be reported upon as heretofore and in its natural connection with the work of the year 1889–90, by the Deans of Harvard College and of the Lawrence Scientific School and by the Secretary of the Academic Council; and to their reports reference is accordingly made for statements as to the number of candidates recommended and the honors and other distinctions awarded for special merit.

CHARLES F. DUNBAR, *Dean.*

THE COLLEGE.

To the President of the University:

Sir, — I have the honor to submit the following report on the administration of the College for the academic year 1889–90. In accordance with the practice of previous years, the report will include the more important transactions of the College Faculty, although a small portion of the business to be reported upon was left unfinished by that body and put into final shape by its successor, the Faculty of Arts and Sciences.

The whole number of students in attendance at the beginning of the year was twelve hundred and seventy-two, distributed as follows: —

Seniors	279
Juniors	244
Sophomores	282
Freshmen	324
Whole number of undergraduates	1129
Special Students	143
Total	1272

One Senior died early in the year; one other was obliged by illness to discontinue his studies; a third withdrew in March and has joined the present Senior class. Four failed to pass in the requisite number of courses. On the other hand, one member of the class absent on leave, and two former members who were registered in the Medical

School, but in their three years' residence as undergraduates had anticipated a considerable portion of the work of the Senior year, completed the requirements for the degree. Accordingly two hundred and seventy-five actual or former members of the class, together with eight Juniors who had fulfilled all the requirements for graduation, and five members of previous classes, who had made up the deficiencies which had prevented them from graduating in regular course, were admitted to the degree on Commencement day. The degree was also conferred, on the recommendation of the Faculty, on three students of one or more years' standing in the Graduate Department.

The number of students who have graduated in each of the last seven classes, and the number in each class who have failed to graduate owing to deficiencies of scholarship, are given in the following table: —

	1884.	1885.	1886.	1887.	1888.	1889.	1890.
Graduated	192	181	221	225	221	204	275
Failed	2	3	4	7	7	4	4

The aggregate losses and gains of the other three classes of last year, from October, 1889, to October, 1890, are shown in the following table: —

	October, 1889.	Loss.	Gain.	October, 1890.
Class of 1891 . .	(Juniors) 244	24	69	(Seniors) 289
Class of 1892 . .	(Sophomores) 282	60	32	(Juniors) 254
Class of 1893 . .	(Freshmen) 324	74	40	(Sophomores) 290

These losses and gains of the several classes are of course not altogether losses or gains to the College, a considerable portion of them being due to the transfer of students from one class to another, as will appear from the next table, which gives the nature of the losses and gains in detail.

Among the thirty-nine students who left College without completing the work of the year are included seven whose incomplete record was due to their failure to pass the examinations. Three of these have entered the Law School. Of the remaining thirty-two, eleven were obliged by ill health to discontinue their studies. The probation of one Freshman was closed for persistent neglect of his studies,

and one other Freshman and two Sophomores were advised to withdraw for the same reason. One Sophomore was dismissed for presenting themes which were not of his own composition. Two withdrew

	Class of 1891.	Class of 1892.	Class of 1893.	Total for three Classes.
Losses.				
Left College without completing the year	7	13	19	39
Left College after completing the year	8	9	5	22
Removed to a lower class	1	10	39	50
Advanced to a higher class	8	28	11	47
Total loss	24	60	74	158
Gains.				
From higher classes	..	1	10	..
From lower classes	29	10	..	..
Newly admitted	40	21	30	91
Total gain	69	32	40	141
Net loss	..	28	34	17
" gain	45	..	..	..

owing to lack of money, and two others to go into business. Twelve withdrew for various other reasons of a personal nature. Of these one has returned to College this year in a lower class, and one has entered the Law School.

Personal or family reasons led to the withdrawal of seven of the twenty-two students who completed the work of the year, but have not returned to College. Three were prevented from returning by poor health, and one died in the summer vacation. Two alleged lack of means as their reason for withdrawing. One was removed by his father temporarily to another college. One left College to go into business, and seven to begin professional study. Of these seven, four were Juniors who had anticipated the greater part of the Senior year's work and have leave to complete the requirements for the degree during the present year while pursuing their professional studies, — three of them in the Law School and one in the Medical School. The other three abandoned their College course, two at the end of the Sophomore and one at the end of the Freshman year.

The fifty students removed to lower classes, together with the seven mentioned above, who would have been placed in lower classes had they returned to College, constitute the aggregate loss

of the three classes due to failure in scholarship. To these are added in the following table, which gives also the corresponding figures for previous years, the four (also mentioned above) who were dismissed or withdrawn from College for persistent neglect of their studies: —

	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.
Removed to lower classes .	7	23	33	33	61	46	47	57
Withdrawn during the year	5	2	12	3	4	· ·	10	4
Total	12	25	45	36	65	46	57	61
Whole number of students in the three classes . .	682	695	745	726	745	760	825	850

Of the forty-seven students advanced to higher classes, four were Juniors who had for special reasons been permitted by the Faculty to qualify themselves for the degree at the end of the Junior year. Eleven Sophomores and two Freshmen, who had been granted a similar privilege, have been advanced, in virtue of the work they have accomplished, to the Senior and Junior classes respectively, the Faculty having adopted the rule that in such cases the student shall be classed according to the number of courses that stand to his credit. The remaining thirty were former members of the classes to which they were advanced, having so far made good their deficiencies as to be entitled to this promotion under the rules. Four of them were Juniors who thus succeeded in graduating with their former class.

The ninety-one persons newly admitted to the three classes under consideration include thirteen students who had previously been members of the College, and resumed their connection after an interval of absence. One of these was readmitted in the course of the past year. Two candidates were admitted to the Sophomore class and one to the Senior class on passing the usual examinations. Fourteen Special Students were admitted, — two to the Senior, five to the Junior, and seven to the Sophomore class, — having given satisfactory proof of their qualifications chiefly by work done in College. Three other Special Students were admitted, — two to the Junior, and one to the Sophomore class, — partly on the basis of work previously done at other colleges. Three students from other departments of the University, and fifty-five graduates or students of other colleges or scientific schools, were admitted directly, — thirty-six to the Senior, twelve to the Junior, and ten to the Sophomore class.

The most interesting feature of these statistics is the marked increase in the number of students admitted, directly or indirectly, on the basis of work done in other colleges or institutions of college grade, the whole number, sixty-six, being sixty percent larger than that of the preceding year. The examination of this class of applications had as long ago as 1883 assumed such importance that the Faculty entrusted it to a standing committee with the Dean as chairman. In 1887 the chairmanship was transferred to Professor Macvane, who held it until the present year, when, in the organization of the Faculty of Arts and Sciences, it naturally devolved upon the Dean of the Graduate School, the admissions to which from other colleges present precisely the same questions as those to the undergraduate classes. No committee of the Faculty has performed a more laborious or a more useful service. It has admitted two hundred and fifty-two candidates who have actually entered College. The number of applications it has considered is perhaps fifty percent larger, since many were rejected and many applicants who were admitted did not come. In its eight years' experience it has accumulated a mass of precedents relating to about ninety colleges or similar institutions. The students admitted have, with very few exceptions, made creditable records here, and some have attained the highest distinction; the policy of this method of admission has been abundantly justified by its fruits. The sudden increase of the number admitted this year may be due to exceptional causes, but there is promise of steady growth in the record of eight years, given in the following table: —

Year of Admission.	Admitted Senior.	Admitted Junior.	Admitted Sophomore.	Admitted Freshman.	Admitted directly.	Admitted after one year or more as Special Student.	Total for all classes.
1883	6	4	1	. .	9	2	11
1884	13	6	7	. .	22	4	26
1885	8	7	5	. .	19	1	20
1886	9	6	9	. .	21	3	24
1887	12	8	8	. .	24	4	28
1888	14	11	6	5	32	4	36
1889	18	9	10	4	36	5	41
1890	34	13	11	8	63	3	66
Total for eight years . .	114	64	57	17	226	26	252

The new Freshman class numbers three hundred and sixty-seven, made up as follows: —

Admitted in 1890	
by examination	302
from other colleges	8
from the Lawrence Scientific School	1
from Special Student	1
Previously admitted	16
Removed from a higher class	39
Total	367

The number of Special Students in attendance at the beginning of the year, and the changes in their number down to October, 1890, are given in the following table: —

In attendance October, 1889		143
Registered later in the year		2
		145
Withdrew without completing any study		21
Completed one or more studies		124
Left College before the end of the year	8	
Left College at the end of the year	36	
Admitted to a College class	18	
		62
Returned as Special Students, September, 1890		62
Newly admitted, September and October, 1890		79
Present number		141

Decrease, 2.

Combining and comparing the statistics which have been given, we obtain the following results: —

Number of students in attendance, October, 1890: —	
Seniors	289
Juniors	254
Sophomores	290
Freshmen	367
Whole number of undergraduates	1200
Special Students	141
Total	1341
Whole number of undergraduates, October, 1889	1129
" " " " 1890	1200
Increase	71
Whole number of students, October, 1889	1272
" " " " 1890	1341
Increase	69

The examinations for admission were this year held at Southborough and Worcester, Mass., and at Minneapolis, Minnesota, in addition to the twelve places where they have heretofore been held in the United States, and at London and Bonn in Europe. The Faculty is now prepared to hold these examinations at any city or school not within easy access of a place where they are already established, on reasonable notice, coupled with the assurance that at least ten candidates (preliminary or final) will present themselves; and a general announcement to this effect will appear in this year's Catalogue. In accordance with the vote of the Faculty noticed in my last report, the autumn examinations began one week before the first day of the academic year, and the candidates were informed of the results in time to give those who were admitted a whole day in which to consult with their advisers and complete other necessary preparations for registering and beginning their regular work at the appointed time. To guard against evasion of the rule requiring of preliminary candidates certificates of preparation from their teachers, the Faculty amended the rule by adding the provision that "when a candidate has been in regular attendance at a school or academy during the year preceding his preliminary examination, his certificate of preparation must be signed by the principal of that school or academy."

The whole number of candidates who offered themselves to be finally examined for admission this year was three hundred and ninety-one, or thirty-six more than in 1889. Of these, seventeen, who took a part of the examination in June with the intention of completing it in September, were so unsuccessful that they abandoned the attempt to pass this year; leaving the number of candidates who completed the examination three hundred and seventy-four. The use made by these of the privilege of dividing the examination was as follows: —

Number of candidates who	
Divided the examination between two years	257
" " " " June and September .	57
Took the whole examination at one time	60
Total	374

The statistics of the examinations which I now submit relate, in the first place, exclusively to these three hundred and seventy-four candidates, without regard to the time when they were examined, and are designed to show the character of their preparation for college, — the studies they pursued in their preparatory course, and the quality of their work as tested by the examinations. Side by side with these

statistics I have placed, for the purposes of comparison, the corresponding figures for 1888 and 1889, the only years in which the examinations have been conducted by the present method exclusively.

It will be remembered that of two of the elementary studies, German and French, the candidate may omit one, provided he present in place of it one advanced study in addition to the two required of all candidates; and also that he may omit elementary Greek or elementary Latin, provided he substitute for it two advanced courses (or their equivalent), one of which, however, must be in mathematics and the other in either mathematics or physical science. With the exception of this restriction on those who omit Greek or Latin, the candidate's choice of advanced studies is entirely free. The number of courses he must choose is: —

(*a*) If he presents all the elementary studies, ... 2 courses.
(*b*) " omits German or French, ... 3 "
(*c*) " " Greek or Latin, ... 4 "
(*d*) " " German or French and Greek or Latin, 5 "

The extent to which each of these four plans of preparation for College has been used by the candidates of 1888, 1889, and 1890 respectively, is shown in the following table: —

	1888.		1889.		1890.	
No. of candidates who presented themselves on—		Per cent.		Per cent.		Per cent.
Plan *a*	99	31.43	122	37.31	137	36.63
Plan *b*, omitting German .	166		150		170	
" " " French .	35		31		32	
" " " both . .	2		. .		4	
Total, plan *b* .	203	64.44	181	55.35	206	55.08
Plan *c*, " Greek . . .	11		21		28	
" " " Latin . . .	0		0		0	
Total, plan *c* .	11	3.50	21	6.42	28	7.49
Plan *d*, " Greek & Germ.	2		2		2	
" " " " "French	0		1		1	
" " " Latin "Germ.	0		0		0	
" " " " "French	0		0		0	
Total, plan *d* .	2	0.63	3	0.92	3	.80
Whole no. of candidates . .	315		327		374	

The following positive statistics, deduced from the above table, may be of interest: —

Number of candidates presenting—	1888.		1889.		1890.	
		Per cent.		Per cent.		Per cent.
Elem. Greek	302	95.87	303	92.66	343	91.71
" Latin	315	100.	327	100.	374	100.
" Greek and Latin . .	302	95.87	303	92.66	343	91.71
" Greek without Latin	0		0		0	
" Latin without Greek	13	4.13	24	7.34	31	8.29
" German	145	46.03	175	53.52	198	52.94
" French	278	88.25	295	90.21	337	90.11
" German and French.	110	34.92	143	43.73	165	44.12
" Germ. without French	35	11.11	32	9.79	33	8.82
" French without Germ.	168	53.33	152	46.48	172	45.99

From this table it appears that the falling off in the proportion of candidates presenting elementary Greek and the increase in the proportion of those presenting German and French, which took place in 1888 and 1889, have progressed no further, the figures for 1889 and 1890 differing in no case as much as one per cent. The provision of a substitute for elementary Greek or Latin has had no effect whatever on the latter; the whole effect has been felt in Greek, which was omitted this year by about eight and a quarter percent of the candidates. This small percentage has been more than offset by the increase in the whole number of candidates, so that the absolute number of those presenting Greek has, since 1888, materially increased. This number for each of the last seven years is given in the following table. Down to 1886 Greek was prescribed for all candidates.

	1884.	1885.	1886.	1887.	1888.	1889.	1890.
Number of candidates examined in elementary Greek	307	319	308	318	302	303	343

It will be remembered further that in two of the elementary studies the candidate has a choice of subjects: in History, between Greek and Roman history on the one hand, and the history of the United States and of England on the other; and in Physical Science, between a course in descriptive physics and astronomy and one in experimental physics. In these two studies the candidates under consideration

and the corresponding candidates in 1888 and 1889, presented themselves for examination as follows: —

	1888.		1889.		1890.	
Students examined—		Per cent.		Per cent.		Per cent.
In the history of Greece and of Rome	281	89	285	87	314	84
" " " " the United States and of England . . .	31	10	42	13	61	16
" neither alternative	3		2		1	
			329		376	
" both alternatives	.		2		2	
	315		327		374	
" descriptive physics and astronomy	212	67	164	50	158	42
" experimental physics	93	30	149	46	199	53
" neither alternative	10		15		17	
			328		374	
" both alternatives	.		1			
	315		327			

There is shown here a slow gain of the modern over the ancient history, but more than five sixths of the candidates still continue to present the latter. On the other hand the experimental physics has advanced rapidly at the expense of the descriptive, and was this year offered by more than half the candidates.

To show the extent to which the several *advanced* studies entered into the preparation of these candidates, I give first the number and the percentage of candidates presenting themselves in each study: —

	1888.		1889.		1890.	
Whole number of candidates	315	Per cent.	327	Per cent.	374	Per cent.
No. offering Greek	256	81	243	74	262	70
" " Latin	301	96	305	93	334	89
" " Greek Comp. .	198	63	188	57	190	51
" " Latin " .	223	71	200	61	217	58
" " German . . .	43	14	43	13	49	13
" " French	61	19	84	26	88	24
" " Logarithms and Trigonometry	48	15	54	17	75	20
" " Solid Geometry	53	17	61	19	91	24
" " Anal. Geometry	12	4	15	5	16	4
" " Mechanics or Adv. Algebra	11	4	10	3	22	6
" " Physics . . .	9	3	1	0.3	9	2
" " Chemistry . .	22	7	27	8	41	11

Here again it is noticeable that in spite of the decrease in the proportion of candidates presenting the *advanced* classical studies, the absolute number has increased in both Greek and Latin. Even in Greek and Latin composition the falling off has not been as great as was to have been expected. Still, in all four subjects there has been a steady decrease in the relative number. Of the other departments, German and physics have made no appreciable gain in the last two years. French gained somewhat in 1889, but has made no advance this year. Chemistry has gained steadily, but claims as yet little more than one tenth of the candidates. The most striking gain is in mathematics, where it appears that in trigonometry and solid geometry both the relative and the absolute numbers have increased, while the other two subjects have at least held their own. The requirement that half of the substitute for elementary Greek must be in mathematics of course accounts for part of this increase, but that it does not account for the larger part is shown by two facts: first, that the increase in trigonometry, which must be offered by *all* candidates who omit Greek, is not as great as in solid geometry, in place of which such a candidate may offer analytic geometry; and, secondly, that while the increase in the proportion of candidates omitting Greek from 1889 to 1890 is less than one percent, the increase in the proportion of those offering trigonometry is three percent.

To show the effect which the greater liberty of choice allowed by our present system has had on the study of the classics and mathematics beyond the elementary requirements among our own candidates for admission, I have prepared the two following tables, in the first of which are given the actual numbers of candidates who have been examined in the advanced studies of these departments during the past seven years. In mathematics the statistics are confined to trigonometry and solid geometry, as these were the only advanced mathematical subjects on which candidates were examined before 1887.

	Old Method.			Old and New.	New Method.		
	1884.	1885.	1886.	1887.	1888.	1889.	1890.
Whole number of candidates	307	319	308	327	315	327	374
Number examined in —							
Advanced Greek	247	265	256	246	256	243	262
Greek Composition	247	265	256	223	198	188	190
Advanced Latin	293	306	301	309	301	305	334
Latin Composition	293	306	301	266	223	200	217
Logarithms and Trigonometry	59	55	55	73	48	54	75
Solid Geometry	59	55	55	76	53	61	91

The other table gives the proportion of these numbers to the whole number of candidates.

	Old Method.			Old and New.	New Method.		
	1884.	1885.	1886.	1887.	1888.	1889.	1890.
Percentage of candidates examined in —							
Advanced Greek	80	83	83	75	81	74	70
Greek Composition	80	83	83	68	63	57	51
Advanced Latin	95	96	98	94	96	93	89
Latin Composition	95	96	98	81	71	61	58
Logarithms and Trigonometry	19	17	18	22	15	17	20
Solid Geometry	19	17	18	23	17	19	24

The tables on pp. 52, 53 are designed to show the various ways in which the advanced studies have been combined in the preparation of three hundred and sixty of these candidates, — fourteen, whose list of advanced studies was incomplete, having been omitted from the account. The figures which are repeated in each line of the table indicate the number of candidates who presented in combination the studies under which the figures are placed. Thus, under Plan *a*, forty-six candidates presented Greek and Latin, one presented Greek with Greek and Latin composition, one presented Greek and French, etc. Full courses are distinguished by capital letters and figures in bold-face type.

For lack of space the single candidate on Plan *d* who presented the full number of advanced studies is not included in the table. His advanced studies were Latin, French, chemistry, and the four mathematical subjects.

The following figures, deduced from these tables. show to what extent the candidates examined for admission in 1888, 1889, and 1890 had carried their studies beyond the requirements: —

Candidates who presented advanced studies exceeding the	1888.	1889.	1890
required amount by one half-course	14	9	16
" one course	39	45	49
" one and a half courses	7	5	3
" two courses	14	9	8
" two and a half courses	..	4	..
" three courses	2	2	2
" three and a half courses	1	..	..
" four courses	3	1	..
Total	80	75	78
Percentage	25.4	22.9	20.9

PLAN *a*. 186 Candidates.	GREEK.	LATIN.	Greek Composition.	Latin Composition.	GERMAN.	FRENCH.	Trigonometry.	Solid Geometry.	Analytic Geometry.	Mechan. or Adv. Alg.	PHYSICS.	CHEMISTRY.
2 Courses.	46	46										
	1		1	1								
	1					1						
		2	2	2								
		2		2				2				
		3			3							
		11				11						
		10					10	10				
		1					1		1			
		1										1
			1			1		1				
					6	6						
					1		1	1				
						2	2	2				
						1						1
							1	1				1
2½ Courses.	1	1		1								
		1	1	1				1				
		1		1	1							
		1		1		1						
						2		2			2	
3 Courses.	10	10	10	10								
	1	1		1				1				
	1	1			1							
	4	4				4						
	1	1					1	1				
	1						1	1				1
		1	1	1	1							
		1	1	1		1						
		1	1	1			1	1				
		4			4	4						
		2				2						2
		1					1	1	1	1		
3½ Courses.	1	1	1	1			1					
	1	1		1			1	1				
4 Courses.	2	2			2	2						
	1	1		1		1		1				
	1	1				1	1	1				
	1	1					1	1			1	
		2	2	2	2	2						
		1				1	1	1				1
5 Courses.	1	1	1	1	1	1						
	1	1	1	1	1							1
Number of Candidates in each study	76	119	23	30	23	44	24	30	2	1	3	8

PLAN *b*. 197 Candidates.	GREEK.	LATIN.	Greek Composition.	Latin Composition.	GERMAN.	FRENCH.	Trigonometry.	Solid Geometry.	Analytic Geometry.	Mech'cs or Adv. Alg.	PHYSICS.	CHEMISTRY.
3 Courses.	138	138	138	138								
	1	1	1					1				
	3	3		3				3				
	2	2			2							
	7	7				7						
	4	4					4	4				
	1		1	1			1	1				
	1		1	1								1
	1						1	1				1
		1	1	1	1							
		2	2	2		2						
		1		1	1		1					
		3		3		3		3				
		1		1			1	1		1		
		1			1							1
		1				1	1	1				
		1					1	1				1
						1	1	1	1	1		
							1	1	1	1		1
3½ Courses.	2	2	2	2				2				
	3	3		3		3						
	1	1		1								1
		1		1			1	1	1	1		
4 Courses.	2	2	2	2	2							
	6	6	6	6		6						
	3	3	3	3			3	3				
	2	2	2	2				2		2		
	4	4	4	4								4
	2	2				2	2	2				
Number of Candidates in each study	183	192	163	175	7	25	18	28	3	6	0	10
PLAN *c*. 26 Candidates.												
4 Courses.		1		1			1	1		1		1
		1			1		1	1	1	1		
		4			4		4	4			4	
		1				1	1	1	1	1		
		1				1	1	1				1
		1				1	1		1			1
					8	8	8	8				8
					1		1	1	1	1		1
						1	1	1	1	1		1
							1	1	1	1	1	1
4½ Courses.		2		2		2	2	2				2
		1			1		1	1		1		1
5 Courses.		1			1	1	1	1	1	1		
					1	1	1	1	1	1		1
5½ Courses.		1		1	1	1	1	1	1	1		
Number of Candidates in each study		14		4	18	17	26	25	9	10	5	18

The success with which this body of candidates sustained the test of the examinations is shown by the next two tables, of which the first gives the percentage of failure in each subject for the last three years: —

Percentage of candidates failing in each study: —	1888.	1889.	1890.
ELEMENTARY STUDIES.			
English	15	17	12
Greek	3	6	9
Latin	3	5	3
German	10	11	12
French	14	12	11
History (Greek and Roman)	5	7	6
" (American and English)	3	13	18
Algebra	22	28	11½
Plane Geometry	21	13	17
Physical Science (Descriptive)	16	15	23
Physics (Experimental)	15	14	14
ADVANCED STUDIES.			
Greek	19	20	10
Latin	9	17	27
Greek Composition	16	12	17
Latin "	26	17	23
German	21	17	18
French	23	23	24
Logarithms and Trigonometry	71	32	40
Solid Geometry	19	23	31
Analytic Geometry	33	33	37½
Mechanics and Advanced Algebra	73	64	45½
Physics	22	100	11
Chemistry	5	0	0

The second table gives the general result of the examination, compared with those of previous years.

	1887.			1888.	1889.	1890.
	Old Method.	New Method.	Total.			
Candidates examined	247	80	327	315	327	374
" admitted	235	66	301	301	305	348
" " clear	89	21	110	125	114	145
" rejected	12	14	26	14	22	26
Per cent "	4.9	17.5	8.	4.4	7.	7.

Of the three hundred and forty-eight candidates admitted this year, three hundred and two entered the Freshman class in September. One, by passing further examinations, was admitted to the Junior

class. Of the remaining forty-five, twenty-six, on account of their youth, or poor health, or lack of money, have decided not to enter College this year, fifteen of them giving notice that they intend to enter next year; four have gone to other institutions; four will not go to college at all; one is undecided; three have gone abroad. The remaining seven have not been heard from.

Besides the three hundred and seventy-four candidates for admission, whose record is exhibited in the preceding statistics, three hundred and seventy-six persons, or twenty-four more than last year, were examined in various subjects as candidates for a preliminary certificate. Both of these classes of candidates are represented in the following tables, which give for each study the proportion of candidates examined, and the proportion of failure among those examined,

Whole number of candidates:	Percentage of the whole number of candidates who were examined in each study.					
	1888.		1889.		1890.	
	Prelim.	Final.	Prelim.	Final.	Prelim.	Final.
Elementary Studies.						
English	6	72	0.3	98	. .	99
Greek	80	40	78	39	81	43
Latin	96	36	95	37	96	39
German	25	36	29	37	33	33
French	72	43	68	48	73	45
History (Greek and Roman)	75	38	76	34	72	39
" (American and English)	11	6	11	8	10	10
Algebra	88	51	86	57	86	58
Plane Geometry	51	79	51	79	52	69
Physical Science (Descriptive)	27	53	15	35	14	34
" " (Experimental)	14	20	29	35	28	33
Advanced Studies.						
Greek	5	79	6	73	3	67
Latin	16	90	15	83	11	84
Greek Composition	19	52	16	46	18	39
Latin Composition	11	64	12.5	59	15	52
German	3	12	5	11	4	9
French	7	16	9	22	6	18
Logarithms and Trigonometry	1	15	4	17	3	19
Solid Geometry	3	15	7	17	5	22
Analytic Geometry	0.3	3	0.3	4	. .	4
Mechanics or Advanced Algebra	0	3	1	3	0.3	5
Physics	0	3	. .	0.3	0.3	2
Chemistry	3	7	3	6	2	8

1888, Preliminary 353
1889, " 352
1890, " 376
1888, Final 315
1889, " 327
1890, " 374

in that study this year. With these are placed the corresponding statistics for the examinations of 1888 and 1889.

	Percentage of failure among those examined in each study.					
	1888.		1889.		1890.	
	Prelim.	Final.	Prelim.	Final.	Prelim.	Final.
ELEMENTARY STUDIES.						
English	50	20	0	17	. .	12
Greek	24	7	28	14	22	15
Latin	23	8	20	14	14	7
German	27	12	15	16	6	15
French	31	29	20	22	21	20
History (Greek and Roman)	12	13	24	17	23	12
" (American and English)	32½	6	15	22	25	27
Algebra	47	43	42	48	19	19
Plane Geometry	41	27	18	16	31	22
Physical Science (Descriptive)	39	20	29	19	30	26
" " (Experimental)	8	27	13	18	11	19
ADVANCED STUDIES.						
Greek	58	20	43	20	55	10
Latin	24	9	52	19	52	29
Greek Composition	36	19	22	15	19	18
Latin Composition	50	28	48	19	39	26
German	33	24	19	19	0	14
French	25	28	29	26	29	29
Logarithms and Trigonometry	67	71	71	33	82	40
Solid Geometry	50	21	52	23	56	34
Analytic Geometry	0	40	100	36	. .	37
Mechanics or Advanced Algebra	. .	73	33	64	0	56
Physics	. .	22	. .	100	100	11
Chemistry	0	5	0	0	0	0

The next table shows the general results of the preliminary examinations of the four years in which the present system has been in operation. In order to secure a certificate, a candidate must ordinarily pass, on studies occupying at least five hours on the examination programme, but for special reasons a certificate may be granted for a smaller number. The time assigned on the programme to the several studies is as follows: English, an hour and a half (but the fraction is neglected in the table); elementary Greek and Latin, and advanced Greek, Latin, German, French, physics, and chemistry, two hours each; all other studies, one hour each.

Number of candidates who passed in studies amounting to	1887.	1888.	1889.	1890.
Four hours	..	..	4	5
Five "	23	34	49	51
Six "	32	53	63	59
Seven "	45	68	54	76
Eight "	54	60	79	80
Nine "	16	24	16	29
Ten "	11	12	11	8
Eleven "	7	1	5	6
Twelve "	3	2	3	..
Thirteen "	0	2	1	3
Fourteen "	1	..	..	2
Fifteen "	..	..	..	1
Received certificates	192*	256	285	320
Failed to obtain a certificate	53	97	67	56
Whole number of candidates	245*	353	352	376

Under the somewhat stricter regulations adopted by the Faculty in 1889, as detailed in my last report, a satisfactory improvement has been effected in the attendance of students at lectures and recitations. The appointment of an additional officer whose chief function was to supervise the records of attendance and to consider excuses for absence, made it possible to hold students to a careful observance of their appointments, without returning to the artificial and mechanical methods of enforcing attendance which the Faculty discarded ten years ago. It cannot be said that the greater regularity of attendance has produced any conspicuous improvement in scholarship; the general appearance of the records in this respect remains about the same, and the losses of the four classes of last year due to failure in scholarship, while slightly less than those of 1889, are somewhat greater than those of 1888. The figures are: in 1888, 5.31 percent; in 1889, 5.89 percent; in 1890, 5.75 percent. This accords with the experience of the Faculty at the time when the first steps were taken towards the abolition of the compulsory system, and at every subsequent step in that experiment; as Dean Gurney remarked in his report for 1874–75, the influence of the change upon the average of scholarship was imperceptible either for good or for evil. On the

* In 1887 seventy-six candidates were examined by the old method, of whom fifty-nine received certificates crediting them with subjects on the new list corresponding to those on which they had passed. The whole number of candidates in 1887 was therefore 321, and the number of those who received certificates was 251.

other hand the greater strictness of last year was brought about without impairing the admirable spirit in the students which has been fostered by the liberal policy of recent years. In administering the discipline of the College the Faculty was called upon in only a few cases to resort to severe penalties, and most of these had no relation to the question of good order. For dishonesty in connection with written or laboratory work, one Junior and one Freshman were suspended, each for a period equal to about half the year; and one Sophomore was dismissed. The probation of one Freshman was closed, and two Special Students were deprived of their privileges, for persistent neglect of their studies. For disorderly conduct, three Freshmen were suspended for short periods.

The instruction given in the College in the year 1889–90 is set forth in detail in the tables on the following pages, which contain a statement of the work done in each course, the names of the instructors, the number of hours a week of instruction, and the number of students of various classes and departments,* as well as the total number of students, in regular attendance. To furnish a complete view of the scheme of instruction, all the courses are included in the list, — those omitted for the year as well as those actually given. Of the omitted courses, those which were not offered are distinguished by a bracket ([); the rest were withdrawn when it appeared that they had not been taken by a sufficient number of competent students. A star (*) indicates that a course could be taken only with the previous consent of the instructor.

In addition to these courses, which may be counted towards the degree of Bachelor of Arts, instruction in Elocution was given to voluntary classes by Mr. Hayes.

In preparing the Announcement of Instruction for 1890–91 it was necessary to keep in view the prospective organization of the College with the graduate department and the Scientific School under a single faculty. This led to the insertion of the courses in Engineering — the only courses of the Scientific School not in the College Faculty's list — immediately after the mathematical courses, and brought up again the question of separate lists of courses for the graduate and undergraduate departments. Since 1882, when the Academic Council

* To designate the various kinds of students in the several courses, the following abbreviations are used: Gr. for Graduate Student, Se. for Senior, Ju. for Junior, So. for Sophomore, Fr. for Freshman, Sp., for Special Student, Sc. for Scientific Student, Di. for Divinity Student, Law for Law Student, Me. for Medical Student, Ve. for Student in Veterinary Medicine, and Bu. for Student of the Bussey Institution.

surrendered the supervision of the graduate courses — which indeed it had exercised only in name — to the College Faculty, there has been no attempt to draw a line between these courses and those designed for undergraduates, but all the instruction in each department, from the most elementary to the most advanced, has been arranged in a single list. The growth of this instruction in extent and variety, the successive steps of which have been recorded from year to year in these reports, suggested further the expediency of a more systematic arrangement than had before been attempted, and also of a greater approach to uniformity in the use of certain terms which had been employed to designate new methods of advanced instruction.

The reasons which led the Faculty in 1882 to throw the graduate and undergraduate courses into one list were found to be no less conclusive now. The courses at the lower end of the list in almost every department were clearly unsuitable to offer to a graduate student, and those at the upper end were quite beyond the reach of the ordinary undergraduate; but between these extremes there was found in most cases a belt of varying width, embracing courses in which graduates and undergraduates sit side by side under the same instructor. The Faculty recognized the necessary existence of this common ground by providing a tripartite classification, to be used in each department so far as applicable. The three classes are distinguished as 'Courses primarily for Undergraduates,' 'Courses for Graduates and Undergraduates,' and 'Courses primarily for Graduates.' The first class is not included in the Announcement of the Graduate School, and the courses in it, though open to any graduate student who desires the instruction, are not ordinarily counted towards any of the higher degrees. On the other hand undergraduates are admitted to a course of the third class only on the recommendation of the instructor.

This scheme was applied with such variations of detail as the conditions of the instruction in the several departments called for. The three groups are all represented in the departments of English, German, French, Philosophy, Political Economy, Fine Arts, Mathematics, Physics, Chemistry, Botany, Zoölogy, and Geology. In the Semitic and Indo-Iranian languages and in Music only the second and third groups appear; in Greek and Latin only the first and second, the Greek and Latin courses designed especially for graduates being grouped together under the new head of Classical Philology. In Engineering, likewise, only the first two groups are found. In Germanic and Romance Philology, on the other hand, all the courses are primarily for graduates. In three departments only is the middle

COURSES OF INSTRUCTION. — CONTINUED.

	INDO-IRANIAN LANGUAGES.			
Prof. Lanman	1. Sanskrit. — Perry's Primer (Sanskrit into English and English into Sanskrit, lessons 1–15). — Whitney's Grammar. — Lanman's Reader (Nala and Hitopadeça, pp. 1–44)	3	2 Gr., 2 Se., 1 Sp.	5
Prof. Lanman	2. Sanskrit (Advanced Course). — The epic Çakuntalā (Mahā Bhārata I. 71–74). — Kālidāsa's drama, Çakuntalā. — Bhartṛhari's Apothegms (the Nīti Çataka and one third of the Vāirāgya Çataka)	3	1 So.	1
Prof. Lanman	3. The Vedas. — Selected hymns of the Rigveda and Atharvaveda	3 from Christmas	1 Gr.	1
Prof. Lanman	4. Old Iranian. — Reading of the Avesta	3	Omitted in 1889–90.	
Prof. Lanman	[5. Pāli. — The Sacred Books of Buddhism	3	Omitted in 1889–90.	
	GREEK.			
	INTRODUCTORY LECTURES for Freshmen studying Greek (open to the public):			
Dr. Morgan	(1) On Lysias and his Times.			
Dr. Tarbell	(2) On Socrates.			
Prof. Wright	(3, 4) On Homer.			
Prof. J. W. White	(5, 6) On the Greek Theatre.			
Dr. Rolfe	*A.* Herodotus (Goodwin's Greek Reader, pp. 112–181, and parts of Book I.). — Homer (Books I., II., III., IV., and VI., with selections from other Books of the Iliad). — Reading at sight	3	2 Se., 2 Ju., 15 Fr., 7 Sp., 1 Sc.	27
Dr. Tarbell	*F.* Greek Prose Composition (Elementary Course). — Sidgwick's First Greek Writer. — Extempore exercises based on easy passages in Greek prose writers	3 a fortnight	1 Se., 1 Ju., 1 So., 5 Fr., 2 Sp.	10

Prof. Toy	9. Ethiopic. — Dillmann's Grammatik and Chrestomathia. — Study of inflections and vocabulary, with comparison of Arabic, Hebrew, and Assyrian. — Reading of selections from the Chrestomathy, including some poetical pieces, and then of portions of Enoch (Dillmann's text), with literary criticism	1	1 Gr.	1
Prof. Toy	11. General Semitic Grammar	1	Not given.	
Prof. Lyon	6. Babylonian-Assyrian History from native sources, with comparison of the Greek and Roman writers	1	2 Gr., 1 Ju., 1 Di.	4
Prof. Lyon	12. History of Israel, political and social, from the period of the Judges until Ezra	2	3 Se., 2 Sp., 14 Di.	19
Prof. Toy	13. History of the Hebrew religion, with comparison of other Semitic religions. — Recitations and lectures. — Reading and discussion of parts of W. R. Smith's Old Testament in the Jewish Church and Kuenen's Religion of Israel. — The lectures first gave a general view of the history of the religion by periods, and then examined at length various topics, such as the ideas of the supernatural powers, good and bad, the moral constitution of man, etc.	2	1 Ju., 1 So., 13 Di.	15
Prof. Toy	14. Political and Social History of the Spanish Califate, with a brief sketch of the contacts between the Semitic and the Indo-European races, and an introductory account of the califates of Medina and Damascus. The history of culture was treated under the heads of government, family-life, education, literature (especially history and philosophy), and religion, with occasional reference to the position of the Jews in Moslem Spain, and the influence of Moslem and Jewish thought on Christian Europe	1	2 Gr., 1 Se.	3

COURSES OF INSTRUCTION. — CONTINUED.

Prof. Wright	6. *First half-year:* Demosthenes (On the Crown, with parts of the Embassy) and Aeschines (Against Ctesiphon). — Lectures on the life, times, and art of Demosthenes, and on Greek oratory *Second half-year:* Aeschylus (Seven against Thebes). — Sophocles (Electra). — Aristophanes (Frogs). — Private reading of one additional play. — Lectures on historical and literary questions and on metres. — Studies on the Electra (text, scholia, special miscellaneous topics, with written English versions) by members of the course	3	5 Se., 17 Ju., 1 So.	23
Prof. Wright	7. Greek Prose Composition (Fourth Course). — Written composition in the style of Plato and of Demosthenes, with studies of classical models. — Translation of selections of standard English (philosophical and rhetorical). — Original composition, prepared and *ex tempore*, on themes suggested by previous reading	1	2 Gr., 10 Se.	12
Prof. J. W. White	[4. The Plays of Aristophanes, with lectures on the scenic and private antiquities	2 or 3	Omitted in 1889–90.	
Prof. Wright	8. *First twenty weeks:* Plato (Phaedrus, Phaedo, and selections from the Republic). — Lectures and studies on topics in pre-Aristotelian Greek philosophy, from the sources (Ritter and Preller, Historia philosophiae graecae) *Last fifteen weeks:* Aristotle (Ethics I.–IV., VIII. 1–5, IX. 3–12)	3	1 Gr., 12 Se., 1 Ju., 1 So.	15
Dr. Tarbell	9. Aeschylus (Agamemnon and Eumenides) — Pindar (selections from the Olympian and Pythian Odes). — Aristotle (Poetics)	3	Omitted in 1889–90.	
Prof. J. W. White	10. The Life of the Ancient Athenians, described and illustrated by the aid of the Literature and the Monuments. — Lectures (twice a week) with illustration by stereopticon (once a week). — Two theses in elementary investigation of subjects relating to Greek life required of each student.	3	1 Gr., 17 Se., 13 Ju., 7 So., 5 Fr., 4 Sp.	47

Prof. Wright	[13. Three Centuries of Greek History (600–300 B.C.). — Studies in institutions and in biography	3	Omitted in 1889–90.	
Prof. Wright	[*16. Introduction to Greek Epigraphy. — Inscriptions from the point of view of Archaeology and History. — Practical exercises	2 or 3 2d half-year	Omitted in 1889–90.	
Dr. Tarbell	18. The Results of Archaeological Research in Greek Lands since 1874 (selected topics). — Lectures on Topography, Architecture, and Sculpture, with collateral reading and occasional theses by the students	2	1 Gr., 1 Se., 1 Ju.	3
Prof. Allen	11. History of Greek Literature from the earliest beginnings to the fall of Constantinople. — Lectures, with direction of the students' private reading	3	4 Gr., 1 Se., 3 Ju.	8
Prof. Goodwin	[*13. Aristotle (Politics)	2 2d half-year	Omitted in 1889–90.	
Prof. Goodwin	[*14. Thucydides (selections from the speeches and the more difficult parts of the narrative)	2 2d half-year	Omitted in 1889–90.	
Prof. Goodwin	[*15. The Political and Legal Antiquities of Athens, illustrated by the Legal Orations of Demosthenes and other Attic Orators	2	Omitted in 1889–90.	
	LATIN.			
Mr. C. P. Parker	*A.* Cicero (selected orations). — Virgil (Aeneid, VII.–XI.). — Reading at sight	3	3 Ju., 7 Fr., 17 Sp., 2 Sc.	29
Mr. C. P. Parker	*F.* Latin Composition (Elementary Course). — Study of Nepos (lives of Miltiades, Themistocles, Alcibiades, Epaminondas, and Hannibal) with translation into Latin of exercises based on them. — Review of syntax. — Lectures, questions, and correction of exercises	3 a fortnight	2 Se., 3 Ju., 1 So., 5 Fr., 3 Sp., 1 Sc.	15
Prof. Greenough and Mr. Nicolson	*B.* Livy (Books XXI. and XXII. 1–34). — Terence (Adelphoe and Andria). — Cicero (De Amicitia). — Reading at sight	3	1 Se., 9 So., 71 Fr., 5 Sp. (Two sections.)	86

COURSES OF INSTRUCTION. — CONTINUED.

Prof. Greenough, Dr. Rolfe, and Mr. Nicolson	*C.* Livy (Books I. and II. 1–32). — Terence (Phormio and Heautontimorumenos). — Cicero (De Amicitia). — Reading at sight	3	1 Ju., 3 So., 87 Fr. 5 Sp., 2 Sc. (Four sections.)	98
Prof. Smith	*D.* (*Advanced Course for Freshmen.*) Cicero (portions of the Brutus). — Livy (Book I. and parts of II.). — Terence (Phormio and Andria). — Reading at sight	3	2 So., 28 Fr.	30
Mr. Nicolson	*E.* Latin Composition (Second Course). — Written translation into Latin of the first 35 exercises in Preble and Parker's Handbook. — Practice (once a fortnight) in the translation into Latin at sight of selected passages of historical narrative. — Criticism and discussion of the translations in class	3 a fortnight	1 Gr., 1 Se., 2 Ju., 8 So., 11 Fr.	23
Prof. Lane	1. Pliny (Selected Letters). — Tacitus (Dialogus; Histories, Book I.). — Horace (Odes and Epodes). — Reading at sight	3	1 Gr., 1 Se., 4 Ju., 42 So., 2 Fr., 1 Sp.	51
Mr. C. P. Parker	2. Pliny (58 Letters). — Cicero (selections from the Tusculan Disputations). — Horace (Odes, I.–III., with selections from IV. and the Epodes. — Reading at sight	3	2 Se., 3 Ju., 37 So., 2 Fr.	44
Mr. C. P. Parker	3. Latin Composition (Third Course). — Exercises, chiefly from Preble and Parker's Handbook of Latin Writing. — One original composition. — Study of style. — Lectures and personal conferences	1	3 Se., 6 Ju., 16 So., 1 Fr.	26
Prof. Greenough	[4. Horace (Satires and Epistles)	3 2d half-year	Omitted in 1889–90.	
Prof. Greenough	5. Ancient Philosophy, as set forth by Cicero (De Finibus; Academica)	3 1st half-year	1 Gr., 2 Se., 6 Ju., 6 So., 1 Fr., 1 Sp.	17
Prof. Allen	9. Practice in speaking Latin. — Prepared oral exercises (chiefly brief expositions of assigned topics) and extemporaneous conversation	2	2 Gr., 1 Se., 2 So.	5

Prof. Smith	6. *First half-year:* Tacitus (Annals, Books I.–IV.)	3	3 Se., 21 Ju., 3 So., 2 Sp.	29
	Second half-year: Juvenal (Satires 1, 3–5, 7, 8, 10, 13). — Martial (162 epigrams)	3	5 Se., 23 Ju., 4 So., 1 Sp.	33
Prof. Greenough	7. Practice in Latin expression and style. — Study of selections from classical prose models. — Original compositions in narrative and augmentative style	1	3 Gr., 9 Se., 1 Ju.	13
Prof. Lane	8. Plautus (five plays. — Cicero (Brutus). — Catullus (selections). — Lucretius (Books I.–III., with selections from IV., V., and VI.)	3	2 Gr., 13 Se., 1 Ju., 1 So.	17
Prof. Greenough	[*10. Private Life of the Romans. — Study of special topics	2	Omitted in 1889–90.	
Prof. Allen	*11. The Roman Religion and Worship. — Reading of Ovid's Fasti, lectures, and research	3 1st half-year	1 Gr.	1
Prof. Lane	[*12. Latin grammar. — Investigation and discussion of special topics	1	Omitted in 1889–90.	
Prof. Greenough	*14. Latin grammar (syntax)	2 or 3 2d half-year	1 Gr., 2 Se., 2 Ju., 1 So.	6
	GREEK AND LATIN.			
Prof. Greenough	[*1. Greek and Latin Comparative Philology	3	Omitted in 1889–90.	
Profs. Lane and Allen	*2. Practice in Text-criticism and Interpretation of Greek and Latin authors. — Aeschylus's Seven against Thebes (vv. 1–400) and portions of Cicero's Republic	3	5 Gr.	5
	ENGLISH.			
Profs. A. S. Hill and Wendell, and Mr. Carpenter	*A.* (Prescribed for Freshmen.) Rhetoric and English Composition. — A. S. Hill's Rhetoric. — Lectures (first half-year, two lectures a week, based on Part I. of the text-book; second half-year, one lecture a week, based on Part II. of the text-book, and one on some master of English literature in the eighteenth century, a portion of whose works the students were asked to read). — Written exercises and oral discussions (once a week)	3	1 Gr., 2 Se., 3 So., 301 Fr., 50 Sp., 8 Sc.	365

COURSES OF INSTRUCTION. — CONTINUED.

Prof. Wendell, and Messrs. Clymer, Kittredge, Carpenter, and Baker	*B.* (Prescribed for Sophomores.) Twelve Themes (one reminiscence, two descriptions, two narratives, one summary, one criticism, two expositions, and two arguments; the choice of the twelfth subject was left to the writers). — Lectures and discussions of themes (once a week). Each theme was returned to the student, carefully criticised in writing, to be subsequently handed back to the Instructor, revised or rewritten in accordance with his criticisms		{6 Se., 14 Ju., 224 So., 10 Fr., 23 Sp., 2 Sc.}	279
Messrs. Thompson and Baker	*C.* (Prescribed for Juniors.) Forensics. — Ten lectures on Argumentative Composition. — Ten lectures (choice of topics; construction of briefs; narrative in argument; essential qualities of an argument (two); the selection and the massing of evidence (three); methods of persuasion; comments on specimen forensics). — Four forensics, preceded by briefs. — Discussions of briefs and forensics		{1 Gr., 18 Se., 235 Ju., 7 So., 1 Fr., 10 Sp., 1 Sc.}	273
Messrs. Baker and Thompson	*D.* (Prescribed for Seniors.) Forensics (second course, conducted on the same plan as Course *C*)		{268 Se., 9 Ju., 1 So., 3 Sp.}	281
Prof. Briggs, and Messrs. Dodge and Thayer	12. English Composition. — Daily themes (one page long) and fifteen longer themes: all these were criticised by instructors, and the longer themes were revised or rewritten. — Lectures once a week. — Criticism by students (each reading a theme written by another) once a fortnight. For discussion of themes with the Instructor the class was divided into sections, each section meeting the Instructor once a fortnight	3	{1 Gr., 57 Se., 78 Ju., 5 Sp., 1 Sc., 1 Di.}	143
Prof. A. S. Hill	*5. English Composition (Advanced Course)	3	{1 Gr., 9 Se., 3 Ju., 1 Sp.}	14

Prof. Hart, and Messrs. Hayes and Mason	*6. Oral Discussion of Topics in Political Economy and History. — Preparation of a written brief, and discussion as a principal disputant by each student four times a year. — Speaking from the floor by each student (not a principal disputant) at each exercise. Criticism by the Instructors on the delivery, and on the matter, arrangement, and manner of presentation	2	16 Se., 1 Di.	17
Prof. Child and Mr. Kittredge	8. English. — Sweet's Anglo-Saxon Reader. — Béowulf. — Exodus	3	5 Gr., 4 Se., 3 Ju., 3 Sp.	15
Prof. Child	[4. Early English. — Old English Literature from 1200 to 1450	3	Omitted in 1889–90.	
Prof. Child	1. English Literature. — Chaucer. — Recitations, with occasional lectures. The class read sixteen of the Canterbury Tales, with the Prologue; the Parliament of Fowls, and most of The Legend of Good Women. A class of Graduates read also about half of Troilus and Cressida	3	7 Gr., 14 Se., 14 Ju., 6 So., 3 Sp.	44
Mr. Kittredge	2. English Literature. — Shakspere (reading and interpretation of Othello, Twelfth Night, Hamlet, Henry V., The Winter's Tale, Antony and Cleopatra)	3	2 Gr., 42 Se., 23 Ju., 23 So., 9 Sp.	99
Prof. Wendell	[14. English Literature. — The Drama (exclusive of Shakspere) from the Miracle Plays to the Closing of the Theatres	1	Omitted in 1889–90.	
Prof. Wendell	*17. English Literature of the Elizabethan period, exclusive of the Drama and of Bacon. — Reading and discussion of selections from Wyatt, Surrey, Ascham, Foxe, Painter, Lyly, Sidney, Ralegh, Spenser, Shakspere, Marlowe, Chapman, Drayton, Davies, and Hooker. A definite amount of reading was prescribed for each week. Each student was asked to hand in weekly notes of his reading. In the course of the year each student gave one lecture on the subject considered by the class during the week in question. The remaining lectures were given by the Instructor	1	2 Gr., 7 Se., 2 Ju., 1 Sp., 1 Sc.	13

COURSES OF INSTRUCTION. — CONTINUED.

Prof. Briggs	[*15. English Literature of the Seventeenth Century	2 2d half-year.	Omitted in 1889–90.	
Prof. A. S. Hill	[7. English Literature of the Eighteenth Century	2 1st half-year	Omitted in 1889–90.	
Prof. A. S. Hill	8. English Literature. — Poets of the Nineteenth Century	2 1st half-year	1 Gr., 20 Se., 15 Ju., 23 So., 8 Sp.	67
Mr. Clymer	9. English Literature. — Prose Writers of the Nineteenth Century. — Lectures on Sydney Smith, Cobbett, De Quincey, Lamb, Hunt, Hazlitt, Landor, Macaulay, Carlyle, Newman, Arnold, Ruskin, and other essayists; and on Jane Austen, Scott, Peacock, Bulwer, Disraeli, Dickens, Thackeray, Kingsley, Charlotte and Emily Brontë, Trollope, George Eliot, and other novelists. — Weekly notes on reading by the students	1	21 Se., 9 Ju., 41 So., 2 Fr., 7 Sp.	80
Prof. Briggs	*16. History and Principles of English Versification. — Lectures (once a week) on the origin and the development of the most important English metres. The students gave the Instructor weekly notes on their reading, and prepared theses on subjects approved by him	1	2 Gr., 4 Se., 3 Ju., 3 So., 1 Sp.	13
Mr. Hayes	*10. Elocution	2	1 Gr., 13 Se., 9 Ju., 2 So., 3 Sp.	28
	[20. English Literature. — Study of special topics		Omitted in 1889–90.	
Profs. Bartlett, Sheldon, Francke and Von Jagemann	**GERMAN.** Six lectures on German Literature, for Freshmen, in November and December			

Prof. von Jagemann and Mr. Hochdörfer	*A.* Elementary Course (prescribed for Freshmen who did not present German for admission). — Sheldon's Grammar. — Grimm (Märchen). — Storm (Immensee). — Zschokke (Der zerbrochene Krug). — Bernhardt's Lesebuch, Vol. II. — Reading at sight. — Translation into German of easy connected prose	3	1 Gr., 2 Ju., 2 So., 149 Fr., 24 Sp., 17 Sc. (Five sections.)	195
Prof. Bartlett	1*a*. Modern Essays, Drama, and Lyrics. — Selections from the Prose of Kähler, Zschokke, Hartmann, Gerstäcker, Heyse, Freytag, Hoffmann, and Goldammer. — German Lyric Poetry. — Weekly practice in composition. — Oral exercises	3	1 Gr., 4 Se., 3 Ju., 76 So., 47 Fr., 10 Sp., 7 Sc. (Partly in three sections)	148
Prof. von Jagemann	1*b*. Schiller's Prose (Der Geisterseher; Geschichte des Abfalls der Niederlande). — Goethe (Egmont). — Hauff (Lichtenstein). — Translation into German of simple historical prose. — During the second half-year the greater part of the time in class was devoted to practice in reading at sight	3	4 Se., 7 Ju., 26 So., 23 Fr., 3 Sp., 3 Sc., 1 Di.	67
Prof. Francke	2. German Literature of the Nineteenth Century. — Schiller (Jungfrau von Orleans and Braut von Messina). — Kleist (Hermannsschlacht and Prinz von Homburg). — Grillparzer (Medea). — Uhland (Ballads and Ernst von Schwaben). — Rückert (Nal und Damajanti). — Heine (Buch der Lieder; Nordseebilder). — Hosmer's History of German Literature. — Weekly compositions	3	1 Gr., 2 Se., 7 Ju., 12 So., 16 Fr., 5 Sp.	48
Prof. Bartlett	3. German Literature of the Eighteenth Century (First Course). — Lessing's Life and Works (Minna von Barnhelm; Emilia Galotti). — Schiller's Life and Works (Der Neffe als Onkel; Die Jungfrau von Orleans; Don Carlos; Die Braut von Messina; Wallenstein; Das Lied von der Glocke; Ballads and Lyrics.) — Selections from the Poetry of Uhland. — Weekly composition. — Practice in writing and speaking German	3	1 Gr., 6 Se., 26 Jr., 22 So., 9 Fr., 5 Sp.	69
Prof. Francke	5. Goethe; a study of his life and work. — Lectures and recitations. — Four theses were written during the year	3	1 Gr., 7 Se., 4 Ju., 4 So., 3 Fr.	19

COURSES OF INSTRUCTION. — CONTINUED.

Prof. Briggs	[*15. English Literature of the Seventeenth Century	2 2d half-year.	Omitted in 1889–90.	
Prof. A. S. Hill	[7. English Literature of the Eighteenth Century	2 1st half-year	Omitted in 1889–90.	
Prof. A. S. Hill	8. English Literature. — Poets of the Nineteenth Century	2 1st half-year	1 Gr., 20 Se., 15 Ju., 23 So., 8 Sp.	67
Mr. Clymer	9. English Literature. — Prose Writers of the Nineteenth Century. — Lectures on Sydney Smith, Cobbett, De Quincey, Lamb, Hunt, Hazlitt, Landor, Macaulay, Carlyle, Newman, Arnold, Ruskin, and other essayists; and on Jane Austen, Scott, Peacock, Bulwer, Disraeli, Dickens, Thackeray, Kingsley, Charlotte and Emily Brontë, Trollope, George Eliot, and other novelists. — Weekly notes on reading by the students	1	21 Se., 9 Ju., 41 So., 2 Fr., 7 Sp.	80
Prof. Briggs	*16. History and Principles of English Versification. — Lectures (once a week) on the origin and the development of the most important English metres. The students gave the Instructor weekly notes on their reading, and prepared theses on subjects approved by him	1	2 Gr., 4 Se., 3 Ju., 3 So., 1 Sp.	13
Mr. Hayes	*10. Elocution	2	1 Gr., 13 Se., 9 Ju., 2 So., 3 Sp.	28
	[20. English Literature. — Study of special topics		Omitted in 1889–90.	
Profs. Bartlett, Sheldon, Francke and Von Jagemann	GERMAN. Six lectures on German Literature, for Freshmen, in November and December			

Prof. von Jagemann and Mr. Hochdörfer	*A.* Elementary Course (prescribed for Freshmen who did not present German for admission). — Sheldon's Grammar. — Grimm (Märchen). — Storm (Immensee). — Zschokke (Der zerbrochene Krug). — Bernhardt's Lesebuch, Vol. II. — Reading at sight. — Translation into German of easy connected prose	3	1 Gr., 2 Ju., 2 So., 149 Fr., 24 Sp., 17 Sc. (Five sections.)	195
Prof. Bartlett	1*a*. Modern Essays, Drama, and Lyrics. — Selections from the Prose of Kähler, Zschokke, Hartmann, Gerstäcker, Heyse, Freytag, Hoffmann, and Goldammer. — German Lyric Poetry. — Weekly practice in composition. — Oral exercises	3	1 Gr., 4 Se., 3 Ju., 76 So., 47 Fr., 10 Sp., 7 Sc. (Partly in three sections)	148
Prof. von Jagemann	1*b*. Schiller's Prose (Der Geisterseher; Geschichte des Abfalls der Niederlande). — Goethe (Egmont). — Hauff (Lichtenstein). — Translation into German of simple historical prose. — During the second half-year the greater part of the time in class was devoted to practice in reading at sight	3	4 Se., 7 Ju., 26 So., 23 Fr., 3 Sp., 3 Sc., 1 Di.	67
Prof. Francke	2. German Literature of the Nineteenth Century. — Schiller (Jungfrau von Orleans and Braut von Messina). — Kleist (Hermannsschlacht and Prinz von Homburg). — Grillparzer (Medea). — Uhland (Ballads and Ernst von Schwaben). — Rückert (Nal und Damajanti). — Heine (Buch der Lieder; Nordseebilder). — Hosmer's History of German Literature. — Weekly compositions	3	1 Gr., 2 Se., 7 Ju., 12 So., 16 Fr., 5 Sp.	48
Prof. Bartlett	3. German Literature of the Eighteenth Century (First Course). — Lessing's Life and Works (Minna von Barnhelm; Emilia Galotti). — Schiller's Life and Works (Der Neffe als Onkel; Die Jungfrau von Orleans; Don Carlos; Die Braut von Messina; Wallenstein; Das Lied von der Glocke; Ballads and Lyrics.) — Selections from the Poetry of Uhland. — Weekly composition. — Practice in writing and speaking German	3	1 Gr., 6 Se., 26 Jr., 22 So., 9 Fr., 5 Sp.	69
Prof. Francke	5. Goethe; a study of his life and work. — Lectures and recitations. — Four theses were written during the year	3	1 Gr., 7 Se., 4 Ju., 4 So., 3 Fr.	19

COURSES OF INSTRUCTION. — CONTINUED.

Prof. Francke	*6. History of German Literature and Art from the Reformation to the middle of the Nineteenth Century. — Lectures and theses. — Each member of the class gave one lecture, during the year, on subjects connected with the course	2	1 Gr., 3 Se., 1 Ju., 3 So., 1 Fr.	9
Prof. Francke	[*7. History of German Literature and Art in the Middle Ages	2	Omitted in 1889–90.	
Prof. von Jagemann	8. Nibelungenlied. — Kudrun. — Hartmann's Der arme Heinrich. — Wolfram's Parzival. — Walther von der Vogelweide. — Reading and translation into modern German of selected portions. — Collateral reading. — Lectures on the history of German literature in the Middle Ages	2 or 3	1 Gr., 1 Se., 1 Ju.	3
	[*9. Practice in writing and speaking German	1 or 2	Omitted in 1889–90.	
Prof. Francke	*20. Special Advaneed Study and Research in the History of German Literature. The subjects treated in 1889–90 were: (1) Goethe's attitude toward Germany. (2) Goethe's ethics	1	1 Gr., 1 Se.	2
	GERMANIC PHILOLOGY.			
Prof. Sheldon	1. Gothic	1 or 2	Omitted in 1889–90.	
Prof. von Jagemann	2. Relation of Old High German to the other Germanic dialects. — Old High German Grammar, with special reference to the explanation of modern German forms. — Interpretation of texts in Braune's Althochdeutsches Lesebuch	1 or 2	3 Gr., 1 Ju.	4
Mr. Kittredge	3. Icelandic (Old Norse). — Selections from the Sagas and the Elder Edda. (Gylfaginning, Völsungsaga, Gunnlangssaga, Ormstungu, and most of the Elder Edda. — Noreen's Altisländische Grammatik)	3	4 Gr., 1 Se.	5

FRENCH.

Prof. de Sumichrast	*A.* Elementary Course (prescribed for Freshmen who did not present French for admission). — Chardenal's First and Second French Courses in full. — Elementary Syntax. — Translation at sight of French into English and English into French. — Reading of French at sight. — Dictation in French. — Study of the Irregular Verbs. — Bôcher's Reader. — Halévy (l'Abbé Constantin). — Erckmann-Chatrian (Madame Thérèse). — George Sand (la Mare au Diable). — Labiche (la Poudre aux Yeux)	3	1 Se., 2 Ju., 4 So., 29 Fr., 30 Sp., 4 Sc., 1 Law (Two sections twice a week)	71
Profs. Cohn, Sanderson, and de Sumichrast	1. Modern plays and novels: Sandeau (Mademoiselle de la Seiglière). — Victor Hugo (Hernani). — G. de Peyrebrune (les Frères Colombe). — Dumas (les Trois Mousquetaires). — George Sand (Marianne). — About (les Mariages de Paris). — Classical writers of the Seventeenth Century: Corneille (Horace). — Racine (Andromaque). — Molière (l'Avare). — La Fontaine (Fables, Book I.). — In addition to the foregoing each student read outside one 12mo volume selected by himself and approved by the Instructor, and eight fables of La Fontaine were committed to memory. — Readings and easy lectures in French. — Grammar and Composition (Roulier's second book, to page 164). — Writing from dictation	3	1 Gr., 4 Se., 10 Ju., 42 So., 112 Fr., 25 Sp., 10 Sc. (Five sections twice a week)	204
Profs. Bôcher and Sanderson	2. La Fontaine. — Corneille. — Racine. — Molière. — Beaumarchais. — Sainte-Beuve. — Alfred de Musset. — Balzac. — Grammaire historique. — Dictations in French history. — Short themes (three a month) giving summaries of the works read in class. — Some of La Fontaine's fables committed to memory	3	1 Gr., 7 Se., 12 Ju., 37 So., 52 Fr., 12 Sp., 2 Sc. (Two sections)	123

COURSES OF INSTRUCTION. — CONTINUED.

Profs. Bôcher and de Sumichrast	3. Lectures on the History of French Literature from its origin to the present day. — Particular study and analysis of Corneille (Le Cid, Horace, Cinna, Polyeucte); Racine (Britannicus, Andromaque, Mithridate); Molière (les Précieuses Ridicules, les Femmes Savantes, le Médecin malgré lui, le Tartuffe); Boileau (l'Art Poétique); Bossuet (Oraison Funèbre d'Henriette de France); La Bruyère (Des Ouvrages de l'Esprit); Voltaire (Lettres choisies); J. J. Rousseau (Morceaux choisis); Victor Hugo (Quatre-Vingt-Treize); George Sand (le Marquis de Villemer); Daudet (Choix d'Extraits and Contes); Pailleron (le Monde où l'on s'ennuie). — Frequent themes on subjects connected with the course. — Memorizing of passages from Corneille, Racine, and Boileau	3	1 Gr., 16 Se., 20 Ju., 28 So., 12 Fr., 7 Sp.	84
Profs. Cohn and Sanderson	4. History of French Literature in the Seventeenth Century. — Descartes (Discours de la Méthode); Corneille (le Cid, Horace, Cinna, Polyeucte, Rodogune, Nicomède, le Menteur); Pascal (les Provinciales); Molière (Théâtre Complet); Racine (Théâtre Complet, Lettres à l'auteur des Hérésies Imaginaires); Boileau (l'Art Poétique, Satires, Epîtres); La Fontaine (Fables); La Rochefoucauld (Maximes); Mme. de Sévigné (Lettres choisies); Bossuet (Oraisons Funèbres, Sermon sur la Mort); La Bruyère (les Caractères); Mme. de Maintenon (Choix de Lettres et Entretiens); Fénelon (Lettre sur les Occupations de l'Académie Française); Saint-Simon (Extraits des Memoires). — Additional private reading. — Each student made a weekly report of his reading, and wrote three French themes, averaging 2000 words each, during the year	3	3 Gr., 12 Se., 6 Ju. 8 So., 5 Fr., 1 Sp.	35

Prof. Bôcher	5. Lectures on French History and Literature from the time of the accession of the house of Valois in 1328 to the end of the Sixteenth Century. — Reading and analytical study of texts, — Montaigne, Froissart, Commines, Rabelais, Villon, Charles d'Orléans, Marguerite de Valois, Marot, Montluc, Calvin, Amyot, Du Bellay, Ronsard and the Pléiade, Agrippa d'Aubigné. — Themes	2	3 Gr., 11 Se., 11 Ju., 2 So., 2 Fr.	29
Prof. Cohn	[6. French Literature to the accession of the house of Valois	2	Omitted in 1889–90.	
Prof. Bôcher	[8. Translation and reading at sight	1	Omitted in 1889–90.	
Profs. de Sumichrast and Cohn	9. Practice in writing and speaking French (Elementary Course). — Worman and Rougemont's Grammaire française. — Blouët's Class-Book of French Composition. — Rougemont's La France. — Conversation on grammar in connection with composition, and on the history and condition of France. — Discussion of questions, participated in by the whole class	2	3 Se., 10 Ju., 31 So., 25 Fr., 7 Sp., 2 Sc., 1 Law (Two sections)	79
Prof. Sanderson	10. Practice in writing and speaking French (Intermediate Course). — Compositions and dictations. — Conversation on selected subjects in French history, or on topics of the present time	2	1 Gr., 6 Se., 6 Ju., 14 So., 6 Fr.	33
Prof. Cohn	11. Short weekly compositions. — Oral reports on articles in the Revue Politique et Littéraire of Paris. — Conversations on political events of the Nineteenth Century, based upon D. Blanchet's Histoire Contemporaine and the Almanach de Gotha for 1889 and 1890. — Six oral discussions	2	3 Gr., 4 Se., 5 Ju., 3 So., 2 Sp.	17
Prof. Cohn	*20. Special Research in French Literature. — Each student was assigned special work in the field chosen by him, and in addition to reporting from time to time on work done, wrote two elaborate theses on subjects assigned by the instructor		2 Gr.	2
	Courses 2, 3, 4, 5, 6, 9, 10, and 11 are conducted in French			

COURSES OF INSTRUCTION. — CONTINUED.

	ITALIAN.			
Prof. Sheldon	1. Grandgent's Italian Grammar. — Cordelia (Vita Intima, selections). — Colombi (Dopo il Caffè, about 190 pages). — Farina (Il Signor Io). — Easy exercises in writing Italian, based on passages in the works read	3	9 Se., 13 Ju., 12 So., 5 Fr., 3 Sp., 1 Sc.	43
Prof. Sheldon	2. Torquato Tasso (Gerusalemme Liberata). — Ariosto (about half of the Orlando Furioso). — Machiavelli (Il Principe). — Pulci (Il Morgante Maggiore, six cantos). — Translation from English into Italian, based on modern Italian prose	3	2 Gr., 1 Se., 4 Ju., 2 So.	9
Prof. Nash	*3. Boccaccio, Petrarca, Dante. — History of Italian Literature	3	Omitted in 1889–90.	
	SPANISH.			
Prof. Nash	1. Del Mar's Grammar. — Gil Blas. — El Eco de Madrid. — Prose composition	3	13 Se., 10 Ju., 10 So., 5 Fr., 2 Sp., 1 Law	41
Prof. Nash	2. Modern Spanish Literature. — Nombela (La riqueza del pobre). — Moratin (El café; El sí de las niñas). — Herreros (Marcela). — Alarcon (El final de Norma; La Corneta de llaves; Viva el papa; Mayo; Fin de una novela; Una conversación en la Alhambra)	3	2 Gr., 4 Se., 4 Ju., 1 Law	11
Prof. Nash	*3. Calderon (El mágico prodigioso). — Lope de Vega (La estrella de Sevilla). — Cervantes (about one sixth of Don Quijote). — Early Spanish (the Poem of the Cid, about one sixth). — Outline of the History of Spanish Literature. — Composition. — The course was conducted chiefly in Spanish	3	1 Gr., 2 Se.	3

	ROMANCE PHILOLOGY.			
Prof. Sheldon	[1. *Introduction to the Comparative Study of the Romance languages*	2 1st half-year	Omitted in 1889–90.	
Prof. Sheldon	2. *Phonetics, with special reference to the explanation of sound-changes in the Romance languages*	2 2d half-year	Omitted in 1889–90.	
Prof. Sheldon	3. Old French. — Phonology and Inflexions. — The oldest texts. — La Chanson de Roland. — Joinville. — Aucassin et Nicolette. — La naissance du Chevalier au Cygne	2	3 Gr.	3
Prof. Sheldon	4. Provençal. — Language and Literature, with selections from the poetry of the Troubadours	2 2d half-year	1 Gr., 3 Se., 1 Ju., 1 So.	6
Prof. Sheldon	5. Low Latin. — Lectures on the characteristics of late vulgar Latin with special reference to Italy and the development of the Italian language. — Exercises in turning classical Latin into theoretical vulgar Latin. — Each student also read privately a specially assigned text, word-list, or study of one or more points of vulgar Latin	2 1st half-year.	2 Gr., 3 Se., 2 So.	7
Prof. Sheldon	[6. Old French dialects, with special reference to Anglo-Norman	2	Omitted in 1889–90.	
Prof. Sheldon	7. The French Element in English. — Lectures. — One thesis, consisting mainly of an etymological word-list to determine for each student the proportion of words from French to native words in a vocabulary of the commonest words used in conversation	1 or 2	2 Gr.	2
Prof. Sheld n	*20. Special Advanced Study and Research. — Studies in the Romance conjugation of verbs (criticism of written work). — Practice in text-criticism (Old French). — The results of a part of this work were embodied in a thesis	1	1 Gr.	1

COURSES OF INSTRUCTION. — CONTINUED.

	PHILOSOPHY.			
	INTRODUCTORY COURSES.			
Prof. Palmer	1. Greek Philosophy (from Thales through the Neo-Platonists). — Zeller's Outlines of the History of Greek Philosophy. — Portions of Plato and Aristotle. — Lectures	3	2 Gr., 10 Se., 23 Ju., 12 So., 1 Fr., 5 Sp., 2 Di.	55
Prof. James	2. Logic and Psychology. — Jevons's Elementary Lessons in Logic. — Ladd's Physiological Psychology. — Oral and written recitations, lectures, and experimental demonstrations	3	1 Gr., 36 Se., 35 Ju., 38 So., 5 Fr., 11 Sp., 2 Sc.	128
Prof. Royce	3. Psychology and General Introduction to Philosophical Study. — Introductory lectures on the nature and aims of Philosophical Study, and on the relations of Psychology to Philosophy at large. — Ladd's Physiological Psychology, with lectures. — Elementary study of the fundamental problems of Philosophy. — Lectures on Logic	3	2 Gr., 15 Se., 21 Ju., 17 So., 1 Fr., 9 Sp., 4 Sc.	69
	ADVANCED COURSES.			
Prof. Palmer	4. Systematic Ethics. — The Theory of Ethics, considered constructively. — Lectures, theses, and private reading. — Each student was responsible for some standard treatise on Ethics, selected by himself, as well as for the matter of the lectures. — Four theses were written	3	5 Gr., 24 Se., 14 Ju., 1 So., 2 Sp., 3 Di.	49
Dr. Santayana	5. English Philosophy. — Berkeley's Principles of Human Knowledge (Fraser's Extracts). — Hume's Treatise of Human Nature (Book I.). — Reid's Essay on the Intellectual Powers of Man. — Lectures and discussions; two theses	3	2 Gr., 3 Ju., 2 So., 2 Sp.	9

Dr. Santayana	6. Earlier French Philosophy, from Descartes to Leibnitz, and German Philosophy from Kant to Hegel. — Descartes' Discourse on Method, Meditations, and the first book of his Principles. — Leibnitz' Monadology. — Kant's Critique of Pure Reason. — Lectures	3	1 Gr., 2 Se., 2 Ju.	5
Prof. Royce	18. The Philosophy of Nature in its relations to Theology and Ethics. — Spinoza's Ethics. — Lectures on the history of the doctrine of Evolution. — Spencer's First Principles. — Leconte's Evolution in its Relation to Religious Thought. — Two theses	2 or 3	4 Gr., 13 Se., 7 Ju., 1 So., 1 Sp., 3 Di.	29
Prof. Peabody	11. The Ethics of Social Reform. — The modern social questions: Charity, Divorce, the Indians, Temperance, and the various phases of the Labor Question, as questions of practical Ethics. — Lectures, essays, and practical observations. — Students in this course made personal study of movements in charity and reform. They inspected hospitals, asylums, and industrial schools in the neighborhood, and the various labor organizations, coöperative and profit-sharing enterprises and movements of socialism, temperance, etc., within their reach. Four special reports were presented by each student, based so far as possible upon these special researches			
Prof. Peabody	*10. The Philosophy of Religion: its rise, problem, and results. — Pfleiderer's Philosophy of Religion. — Caird's Philosophy of Religion. — Lectures and a thesis	1	2 Gr., 3 Se., 7 Di.	12
	COURSES FOR SPECIAL RESEARCH.			
Prof. James	20*a*. Questions in Psychology. — Lectures (two hours a week). — Laboratory work. — Theses on special subjects prepared by the students		6 Gr., 1 Se.	7
Prof. Royce	20*b*. The Development of the Hegelian System. — Hegel's Phänomonologie des Geistes. — Lectures. — Study by each student of a selected topic, the results presented in a thesis	2 to 4	7 Gr., 2 Di.	9

Prof. Palmer	20*c*. Questions in Ethics for individual investigation. The topics studied were: (1) Kant's Conception of a Categorical Imperative and of Freedom; (2) The Ethical relation of the Individual to Society		2 Gr.	2
	POLITICAL ECONOMY.			
Profs. Taussig and Macvane, and Mr. Mason	1. Mill's Principles of Political Economy. — Cairnes's Leading Principles of Political Economy. — Lectures on Social Questions (Coöperation, Profit-Sharing, Trades-Unions, Socialism), Banking, and the financial legislation of the United States	3	2 Gr., 29 Se., 65 Ju., 60 So., 20 Sp., 3 Sc.	179
Prof. Taussig and Mr. Brooks	*2. History of Economic Theory. *First half-year:* Lectures on the History of Economic Theory. — Discussion of selections from Adam Smith and Ricardo. — Topics in distribution, with special reference to wages and managers' returns. — *Second half-year:* Modern Socialism in France, Germany, and England. — An extended thesis from each student	3	7 Se., 12 Ju., 1 So., 3 Sp., 1 Sc.	24
Prof. Taussig and Mr. Brooks	*3. Investigation and Discussion of Practical Economic Questions. — Subjects for 1889–90: Profit-Sharing; the Silver Situation in the United States; Prices since 1850; the Regulation of Railways by the Interstate Commerce Act. — Lectures and discussion of theses	2	15 Se., 4 Ju.	19
Mr Miller	4. Economic History of Europe and America since the Seven Years' War. — Lectures and written work	3	25 Se., 27 Ju., 35 So., 3 Fr., 15 Sp., 1 Sc.	106
Prof. Taussig	*6. History of Tariff Legislation in the United States. — Lectures on the History of Tariff Legislation. — Discussion of brief theses (two from each student). — Lectures on the Tariff History of France and England	2 or 3 2d half-year	19 Se., 9 Ju., 1 Sc.	29
Prof. Dunbar	[*7. Public Finance and Banking		Omitted in 1889–90.	

Mr. Miller	*8. History of Financial Legislation in the United States. — Lectures and briefs theses	2 or 3 1st half-year	13 Se., 10 Ju., 1 Sp., 1 Sc.	25
Prof. Dunbar	[*9. Management and Ownership of Railways. — History of Railway Transportation	3	Omitted in 1889–90.	
Prof. Taussig	*20. Special Advanced Study and Research: (*a*) The Duties on Wool and Woolens since 1867 (*b*) The Tobacco Tax (*c*) Workmen's Insurance in the United States, with special reference to Railway Employees		3 Se.	3
	Meetings ordinarily once a fortnight for the discussion of sources and results.			
	HISTORY.			
Prof. Channing	1. Mediaeval and Modern European History (introductory to Courses 5, 6, 8, 9, 10, 11, and 12). — Lectures and collateral reading	3	1 Se., 2 Ju., 46 So., 156 Fr., 84 Sp., 4 Sc.	243
Prof. Macvane	2. Constitutional Government (Elementary Course, introductory to Courses 11, 12, 13, and 17)	3 1st half-year	3 Se., 21 Ju., 76 So., 72 Fr., 35 Sp., 3 Sc.	210
Mr. Bendelari	3. History of the Development of Political and Legal Institutions in Rome to the Fall of the Republic	2 or 3	2 Gr., 10 Se., 4 Ju., 2 So., 2 Fr., 2 Sp.	22
Mr. Bendelari	[4. Later Roman and Early Mediaeval History	2 or 3	Omitted in 1889–90.	
Prof. Emerton	[5. The Conflict of Christianity with Paganism. — Origin and development of the Roman Primacy to its alliance with the Holy Roman Empire	2	Omitted in 1889–90.	
Prof. Emerton	[6. The Mediaeval Church, with especial reference to its effect upon public life and upon intellectual and social progress	2	Omitted in 1889–90.	

COURSES OF INSTRUCTION. — CONTINUED.

Dr. Snow	8. History of Government and Administration in France from Charlemagne to Louis XIV. (the rise and decline of Feudalism, the growth of royal power, the communal system, the Parliaments, the States General, the Church, etc.)	3	3 Gr., 5 Se., 3 Ju.	11
Dr. Gross	9. Constitutional and Legal History of England to the Sixteenth Century. A detailed account of the constitutional history of England from the earliest times down to the end of the thirteenth century, with a general view of English constitutional history during the fourteenth and fifteenth centuries. Lectures covering this ground, and comments by the Instructor on documents printed in Stubb's Select Charters. — Three theses required of each student	3	2 Gr., 9 Se., 5 Ju., 3 So., 2 Sp., 2 Law	23
Dr. Allen	10. The Age of the Protestant Revolution, from the time of Boniface VIII. to the height of the Catholic reaction under Philip II. The growth of the national consciousness and the decline of the civil and ecclesiastical supremacy of the papacy; the popes at Avignon; the papal schism; reformatory councils; rise of Humanism in Italy; its extension into Germany, France, and England; decline of Scholasticism and Monasticism; the reforms of Luther, Zwingle, Calvin, and Henry VIII.; Catholic Reaction, Inquisition, Loyola, Council of Trent; Philip II. and the Counter Reformation in France, the Netherlands, and England. — Lectures and theses	2	4 Gr., 23 Se., 9 Ju., 6 So., 4 Sp., 2 Di.	48
Mr. Bendelari	11. European History during the Seventeenth Century and the first half of the Eighteenth	3	2 Gr., 22 Se., 15 Ju., 14 So., 3 Fr., 6 Sp., 1 Sc.	63
Profs. Macvane and Channing	12. European History from the Middle of the Eighteenth Century. — Lectures and collateral reading. — Two short theses	3	4 Gr., 24 Se., 43 Ju., 38 So., 1 Fr., 10 Sp., 1 Sc.	121

Prof. Channing	18. The Political and Constitutional History of the English North American Colonies to the close of the Revolutionary period. — Lectures, collateral reading, and studies of original sources	3	3 Gr., 15 Se., 3 Ju., 3 So., 2 Fr., 3 Sp.	34
Prof. Hart	13. Constitutional and Political History of the United States (1783–1861). — Lectures, with collateral reading. — Five or six special reports were required from each student. Each report necessitated from three to twelve hours of research in the Library, under the direction of an assistant	3	5 Gr., 58 Se., 44 Ju., 25 So., 1 Fr., 7 Sp., 1 Sc., 1 Law	142
Prof. Hart	17. General History of the United States. — Lectures, with collateral reading. — Three special reports, each necessitating from four to ten hours of research in the Library, under the direction of an assistant, were required of each student	3 2d half-year	8 Se., 20 Ju., 36 So., 21 Fr., 21 Sp., 3 Sc., 1 Law	110
Profs. Macvane and Hart	*14. Constitutional Government (advanced course). — Lectures. — Reports by the students of results of their investigations	3	2 Gr., 7 Se.	9
Dr. Snow	*15. Elements of Public International Law (twice a week). — Hall's treatise on International law. — Discussion of cases from Law Reports and other sources. — History of Treaties (once a week). — Study of important Treaties and of the General History of Diplomacy in Europe and America since 1783	3	1 Gr., 52 Se., 7 Ju., 1 So., 2 Sp.	63
Prof. Everett	*16. Studies in the Comparative History of Religions, particularly the Vedic religion, the Hindu Philosophies, Buddhism, Mazdaism, and the Chinese religions. — Lectures	2	3 Se., 1 Ju., 18 Di.	22

COURSES OF INSTRUCTION. — CONTINUED.

	*20. Special Advanced Study and Research:			
Dr. Gross	(*b*) Topics in Mediaeval Municipal History. The work consisted of: (1) lectures on municipal history; (2) an elaborate thesis by each student on a topic connected with municipal history; (3) topics investigated by the students collectively under the guidance of the Instructor	2	2 Gr., 1 Se.	3
Prof. Macvane	(*c*) The Social Condition of Europe in the Eighteenth Century. The work consisted wholly of investigation by the students of topics selected at the beginning of the year. There were no meetings of the students as a class. Each student conferred individually with the Instructor regarding the progress of his work, and embodied the results of his studies in a thesis at the end of the year		1 Gr., 2 Se.	3
Prof. Hart	(*d*) Topics in American History. — Preparation of elaborate theses. — Each student had a half-hour of conference with the Instructor weekly. Each thesis included an appendix of illustrative documents and a discussion of the whole subject		4 Gr., 5 Se., 3 Law	12
Prof. Channing	(*e*) Topics in American History and in Modern Diplomatic History. The topics selected were: (1) the political organization of the American Revolution; (2) the Eastern Question, 1856–1889. — Lectures by the students twice a week from November to April		3 Gr., 9 Se., 1 Ju.	13
Dr. Snow	(*f*) History of Diplomacy since 1815. Study of the chief diplomatic events of Europe and America from the original sources. — Reports (written or oral) upon special topics or periods presented and discussed	2	4 Se.	4

	ROMAN LAW.			
Mr. Schofield	1. History and Institutes of Roman Law	3	1 Gr., 15 Se., 4 Ju., 2 So., 1 Fr., 1 Sp.	24
	[2. Advanced study of special topics		Omitted in 1889–90.	
	FINE ARTS.			
Mr. Moore	1. Principles of Delineation, Color, and Chiaroscuro. — Lectures (once a week), with collateral reading: Ruskin's Modern Painters (selections from Vols. I., III., IV., V.) and Elements of Drawing; Sir Joshua Reynolds' Eleventh Discourse; Longfellow's Abstract of Lectures on Perspective. — Practice in Drawing and in the use of Water-colors (four to six hours). — Perspective		6 Se., 18 Ju., 13 So., 8 Fr., 4 Sp., 5 Sc.	54
Mr. Moore	2. Principles of Design in Painting, Sculpture, and Architecture. — Lectures (once a week), with collateral reading: selections from Perrot and Chipiez's and Reber's histories of Ancient Art; Viollet-le-Duc's Dictionnaire Raisonné de l'Architecture française; Chateau's Histoire et Caractères de l'Architecture en France. — Practice in Drawing and Water-colors (two to four hours)		3 Se., 2 Ju., 2 So., 4 Sp.	11
Prof. Norton	[3. Ancient Art	3	Omitted in 1889–90.	
Prof. Norton	4. Roman and Mediaeval Art. — Lectures on the arts as illustrating the moral, intellectual, and social conditions of the period treated of; the influence of the tradition of the ancient arts on those of the Middle Ages; the intellectual revival of the 12th century; the rise and development of Gothic architecture; the arts of the early Renaissance, etc.	3	6 Gr., 83 Se., 81 Ju., 42 So., 5 Fr., 20 Sp., 3 Sc.	240
Prof. Norton	*8. Literature and the Fine Arts in Italy during the Middle Ages and the Renaissance, with special study of Dante. — In Course 8 a knowledge of Italian is required	3	2 Gr., 8 Se., 1 Ju.	11

COURSES OF INSTRUCTION. — CONTINUED.

	MUSIC.			
Prof. Paine	1. Harmony. — Jadassohn's Harmony. — Written exercises on figured basses and the harmonizations of given melodies, including chorals, played over and corrected in the class-room	3	3 Se., 2 Ju., 3 So., 10 Fr., 4 Sp.	22
Prof. Paine	2. Counterpoint. — Jadassohn's Counterpoint. — Written exercises and compositions in the various orders of strict Counterpoint, in two, three, and four voices, with *cantus firmus*. — Double Counterpoint. — Free Imitative Counterpoint. — Inventions in two voices. — Choral harmonizations. — Organ preludes in three and four voices. — Songs and Part-songs were also composed by the students	2	1 Se., 6 So., 3 Sp.	10
Prof. Paine	3. History of Music, with analysis of the works of the great masters. — Lectures. — Written descriptions of the orchestral scores and biographical and critical sketches of the great composers were required of the students	1 or 2	2 Se., 4 Ju., 8 So., 3 Sp.	17
Prof. Paine	[*7. Instrumentation	1	Omitted in 1889–90.	
Prof. Paine	[*5. Canon and Fugue	2	Omitted in 1889–90.	
Prof. Paine	*6. Free Thematic Music. — Original compositions in free form (nocturnes, rondos, minuets, marches, etc.). — Canons in two and three voices, in similar and contrary movement. — Fugues in two or three voices. — Bussler's Musical Form. — Jadassohn's Canon and Fugue	2	1 Gr., 3 Ju., 1 Sp.	5
	MATHEMATICS.			
Prof. C. J. White	*A.* Logarithms. — Plane Trigonometry, with some of its applications to Surveying and Navigation. — Wheeler's Logarithms. — Peirce's Mathematical Tables. — Wheeler's Plane Trigonometry. — Problems in Plane Trigonometry	3 1st half-year	4 Se., 8 Ju., 20 So., 79 Fr., 14 Sp., 17 Sc. (Two sections)	142

Prof. C. J. White	*B.* Analytic Geometry (elementary course). — Briggs's Analytic Geometry	3, 2d half-year	2 Se., 7 Ju., 14 So., 46 Fr., 6 Sp., 7 Sc. (Two sections)	82
Mr. Anderegg	*C.* Analytic Geometry (extended course). — Lectures	3	1 Gr., 5 So., 15 Fr., 2 Sp., 2 Sc.	25
Mr. Sawin, Dr. Markley, and Mr. Bailey	*D.* Algebra. — Wentworth's College Algebra (Chapters 9–18, 21, 22, and part of Chapter 29). — Lectures and recitations *Advanced Section:* Wentworth's College Algebra (Chapters 10–18, 21, 22, 29, 30). — Lectures and recitations	3, 1st half-year	6 Se., 13 Ju., 18 So., 45 Fr., 16 Sp., 8 Sc. (Four sections)	106
Dr. Markley and Mr. Bailey	*E.* Solid Geometry. — Chauvenet's Geometry (Books VI.–IX.). — Wentworth and Hill's Exercises. — Lectures and recitations	3, 2d half-year	9 Se., 15 Ju., 17 So., 37 Fr., 10 Sp., 10 Sc. (Two sections)	98
Prof. C. J. White	[1. Practical Applications of Plane Trigonometry. — Applications of Plane Trigonometry to Astronomy and Navigation	2	Omitted in 1889–90.	
Prof. Byerly	2. Differential and Integral Calculus (First Course). — Byerly's Differential Calculus. — Lectures	3	1 Gr., 1 Se., 9 Ju., 28 So., 5 Fr., 2 Sp., 3 Sc.	49
Prof. Byerly	3. Analytic Geometry (higher course)	3	3 Gr., 4 Se., 1 Ju., 6 So., 1 Sc.	15
Mr. Sawin, Prof. B. O. Peirce, and Mr. Roe	4. The Elements of Mechanics. — The Statics of Rigid Bodies treated Analytically. — The Elements of Graphical Statics. — The Dynamics of a Particle. — Lectures	3	2 Gr., 1 Se., 7 Ju., 1 So., 1 Sp., 1 Sc.	13
Prof. Byerly	12. The Theory of Differential Equations. — A course of reading under the direction of the Instructor. — (The plan of this course was changed owing to the death of Mr. Sawin)		1 Sc.	1

COURSES OF INSTRUCTION. — CONTINUED.

Prof. C. J. White	5. Differential and Integral Calculus (Second Course). — Byerly's Integral Calculus (Methods of Integration; Determination of lengths of curves, areas, volumes, centres of gravity moments of inertia; Definite integrals; Elliptic integrals and functions; Mean value and probability; Introduction to the theory of functions; Differential equations)	3	4 Gr., 5 Se., 6 Ju., 1 So., 1 Sc.	17
Dr. Markley	6. Quaternions and Theoretical Mechanics. — Lectures on Composition of Vectors; Elementary Principles of Quaternions; Differentiation of Quaternion Functions; Geometry of the Right Line, Circle, Sphere, and Cyclic Cone; Theory of the Linear Vector Function; Elements of Theory of Tortuous Curves and Dynamics of a Particle	3	5 Gr., 5 Se., 3 Ju.	13
Prof J. M. Peirce	[7. Higher Plane Curves		Omitted in 1889–90.	
Mr. Sawin and Mr. Bailey	14. Higher Algebra. — Theory of the general Cubic and Biquadratic; Symmetric Functions; Resultants; Determinants; Invariants and Covariants of the Cubic, Quartic, and Quintic; The general Invariant Theory. — Lectures	3	1 Gr., 2 Se.	3
Prof. Byerly	[8. Analytic Mechanics	3	Omitted in 1889–90.	
Prof. J. M. Peirce	[9. Quaternions and Theoretical Mechanics (Second Course)	3	Omitted in 1889–90.	
Prof. Byerly	10. Trigonometric Series. — Introduction to Spherical Harmonics. — Lectures	2	5 Gr., 2 Se.	7
Prof. B. O. Peirce	11. Hydrostatics. — Hydrokinematics. — Force Functions and Velocity Potential Functions and their uses. — The Application of the Newtonian Potential Function to the solution of Problems in Electrostatics and Electrokinematics. — Lectures	3	6 Gr., 2 Se.	8
Prof. B. O. Peirce	[15. Wave Motion	3	Omitted in 1889–90.	

Prof. Byerly	16. Problems in the Mechanics of Rigid Bodies. — Routh's Rigid Dynamics. — Lectures	2	4 Gr., 1 Se.	5
Prof. J. M. Peirce	[18. The Theory of Functions	3	Omitted in 1889–90.	
	20. Special Advanced Study and Research:			
Prof. C. J. White	(*a*) Gauss's Theoria Motus Corporum Coelestium		Omitted in 1889–90.	
Prof. Byerly	(*b*) Bessel's and Lamé's Function and their use in problems in Physics. — Theses	1	2 Gr.	2
Mr. Sawin	(*c*) Higher Algebra (second course)		Omitted in 1889–90.	
	PHYSICS.			
Profs. Trowbridge, B. O. Peirce, and Hall	*A.* Introductory Lectures (Prescribed for Freshmen)	1 2d half-year		
Prof. Hall	*B.* Experimental Physics. — A course of experiments following the Descriptive List of Elementary Physical Experiments issued by the College, omitting about one fourth of the exercises. — Lectures (once a week) and Laboratory work (two hours a week)	3	1 Gr., 10 Se., 14 Ju., 18 So., 27 Fr., 14 Sp., 9 Sc.	93
Prof. B. O. Peirce	*C.* Experimental Physics. — Measurements in Mechanics, Sound, Heat, Light, Electricity, and Magnetism. — Lectures and Laboratory work (together, six hours a week)		6 Se., 4 Ju., 9 So., 15 Fr., 3 Sp., 17 Sc.	54
Prof. Hall	1. General Descriptive Physics. — Everett's Deschanel's Natural Philosophy (omitting some of the more difficult portions and nearly the whole treatment of Static Electricity). — Lectures and recitations (twice a week). — Laboratory work (two hours a week)		1 Gr., 4 Se., 5 Ju., 4 So., 7 Fr., 3 Sp., 9 Sc.	33
Prof. B. O. Peirce	3. Electrostatics, Electrokinematics, and parts of Electromagnetism. — Lectures (once a week) and Laboratory work (six to eight hours a week)		1 Gr., 2 Se., 2 Ju., 9 So., 2 Sp., 2 Sc.	18
Prof. Trowbridge	4. Electromagnetism. — Fleming's treatise on Induction. — Lectures (twice a week). — Laboratory work (six hours a week) based upon topics treated in the text-book		2 Se., 2 Ju., 4 So., 2 Sp., 2 Sc.	12

COURSES OF INSTRUCTION. — CONTINUED.

Prof. C. J. White	5. Differential and Integral Calculus (Second Course). — Byerly's Integral Calculus (Methods of Integration; Determination of lengths of curves, areas, volumes, centres of gravity moments of inertia; Definite integrals; Elliptic integrals and functions; Mean value and probability; Introduction to the theory of functions; Differential equations)	3	4 Gr., 5 Se., 6 Ju., 1 So., 1 Sc.	17
Dr. Markley	6. Quaternions and Theoretical Mechanics. — Lectures on Composition of Vectors; Elementary Principles of Quaternions; Differentiation of Quaternion Functions; Geometry of the Right Line, Circle, Sphere, and Cyclic Cone; Theory of the Linear Vector Function; Elements of Theory of Tortuous Curves and Dynamics of a Particle	3	5 Gr., 5 Se., 3 Ju.	13
Prof J. M. Peirce	[7. Higher Plane Curves		Omitted in 1889–90.	
Mr. Sawin and Mr. Bailey	14. Higher Algebra. — Theory of the general Cubic and Biquadratic; Symmetric Functions; Resultants; Determinants; Invariants and Covariants of the Cubic, Quartic, and Quintic; The general Invariant Theory. — Lectures	3	1 Gr., 2 Se.	3
Prof. Byerly	[8. Analytic Mechanics	3	Omitted in 1889–90.	
Prof. J. M. Peirce	[9. Quaternions and Theoretical Mechanics (Second Course)	3	Omitted in 1889–90.	
Prof. Byerly	10. Trigonometric Series. — Introduction to Spherical Harmonics. — Lectures	2	5 Gr., 2 Se.	7
Prof. B. O. Peirce	11. Hydrostatics. — Hydrokinematics. — Force Functions and Velocity Potential Functions and their uses. — The Application of the Newtonian Potential Function to the solution of Problems in Electrostatics and Electrokinematics. — Lectures	3	6 Gr., 2 Se.	8
Prof. B. O. Peirce	[15. Wave Motion	3	Omitted in 1889–90.	

Prof. Byerly	16. Problems in the Mechanics of Rigid Bodies. — Routh's Rigid Dynamics. — Lectures	2	4 Gr., 1 Se.	5
Prof. J. M. Peirce	[18. The Theory of Functions	3	Omitted in 1889–90.	
	20. Special Advanced Study and Research:			
Prof. C. J. White	(*a*) Gauss's Theoria Motus Corporum Coelestium		Omitted in 1889–90.	
Prof. Byerly	(*b*) Bessel's and Lamé's Function and their use in problems in Physics. — Theses	1	2 Gr.	2
Mr. Sawin	(*c*) Higher Algebra (second course)		Omitted in 1889–90.	
	PHYSICS.			
Profs. Trowbridge, B. O. Peirce, and Hall	*A.* Introductory Lectures (Prescribed for Freshmen)	1 2d half-year		
Prof. Hall	*B.* Experimental Physics. — A course of experiments following the Descriptive List of Elementary Physical Experiments issued by the College, omitting about one fourth of the exercises. — Lectures (once a week) and Laboratory work (two hours a week)	3	1 Gr., 10 Se., 14 Ju., 18 So., 27 Fr., 14 Sp., 9 Sc.	93
Prof. B. O. Peirce	*C.* Experimental Physics. — Measurements in Mechanics, Sound, Heat, Light, Electricity, and Magnetism. — Lectures and Laboratory work (together, six hours a week)		6 Se., 4 Ju., 9 So., 15 Fr., 3 Sp., 17 Sc.	54
Prof. Hall	1. General Descriptive Physics. — Everett's Deschanel's Natural Philosophy (omitting some of the more difficult portions and nearly the whole treatment of Static Electricity). — Lectures and recitations (twice a week). — Laboratory work (two hours a week)		1 Gr., 4 Se., 5 Ju., 4 So., 7 Fr., 3 Sp., 9 Sc.	33
Prof. B. O. Peirce	3. Electrostatics, Electrokinematics, and parts of Electromagnetism. — Lectures (once a week) and Laboratory work (six to eight hours a week)		1 Gr., 2 Se., 2 Ju., 9 So., 2 Sp., 2 Sc.	18
Prof. Trowbridge	4. Electromagnetism. — Fleming's treatise on Induction. — Lectures (twice a week). — Laboratory work (six hours a week) based upon topics treated in the text-book		2 Se., 2 Ju., 4 So., 2 Sp., 2 Sc.	12

COURSES OF INSTRUCTION. — CONTINUED.

Prof. Trowbridge	5. Light. — A general treatment of Optical Phenomena		Omitted in 1889–90.	
Prof. B. O. Peirce	6. Thermodynamics	2	3 Se., 1 Ju., 1 Sc.	5
Prof. Hall	7. Dynamos: the theory of their action and the principles of their economical operation, with practice in managing and testing them. — Thompson's Dynamo-Electric Machinery to Chap. XXIII. (omitting much of the detailed description of particular machines). — Lectures (twice a week) and Laboratory work (five hours a week)	1st half-year	1 Se., 2 Ju., 1 So., 1 Sp., 2 Sc.	7
Prof. Hall	10. Heat Engines: the theory of their action and the principles of their economical operation, with practice in managing and testing them. — Peabody's Thermodynamics of the Steam-Engine and Tables of the Properties of Saturated Steam and Other Vapors. — Lectures (twice a week). — Laboratory work (five hours a week) mainly devoted to a study of the mechanism of an ordinary 25 h. p. Kendall & Roberts steam-engine and of its performance with and without a condenser	2d half-year	3 Se., 1 Sc.	4
Prof. B. O. Peirce	*8. The Mathematical Theory of Electrostatics and Electrokinematics		Omitted in 1889–90.	
Prof. Hall	[*9. The Mathematical Theory of Electrodynamics and Electromagnetism		Omitted in 1889–90.	
	*20. Special Advanced Study and Research:			
Prof. Trowbridge	(*a*) Electrical Oscillations. — Spectrum Analysis. — Ultra violet spectra. — Laboratory (three or four hours a day)		1 Gr.	1
Prof. B. O. Peirce	(*b*) Electrostatic Measurements. — Subject for the year: the Use of Paraffine as a Dielectric in Condensers. — Laboratory work (twenty hours a week). — The results of the work are to be published in the Proceedings of the American Academy of Arts and Sciences		1 Se.	1
Dr. Whiting	(*c*) [Sound and Elasticity		Omitted in 1889–90.	
Prof. Hall	(*d*) Electromagnetism		Omitted in 1889–90.	

CHEMISTRY.

Prof. Cooke	*A.* Elementary Chemistry (Prescribed for Freshmen). — Lectures	1 1st half-year	1 Se., 1 Ju., 6 So., 301 Fr., 39 Sp., 8 Sc.	356
Prof. Cooke and Dr. Huntington	*B.* Experimental Chemistry. — Lectures (once a week). — Laboratory work (three, or if taken as a full course, six hours a week)		2 Se., 3 Ju., 7 So., 24 Fr., 4 Sp., 4 Sc.	44
Dr. Huntington	*C.* Mineralogy of common rocks and metallic ores, including blow-pipe assaying and the simpler methods of furnace assaying of silver and gold ores. — Lectures (three hours a week). — Laboratory work		3 Se., 1 Ju., 2 So., 1 Sp., 1 Sc.	8
Prof. Jackson	1. Descriptive Inorganic Chemistry. — Study of the elements and their most important compounds, including a sketch of technological chemistry. — Lectures (twice a week), and either laboratory work (four hours), or recitations (once) and laboratory work (two hours)		3 Gr., 8 Se., 21 Ju., 30 So., 9 Fr., 8 Sp., 17 Sc. (Two sections)	96
Dr. Huntington	2. Determinative Mineralogy. — Lectures (three times a week) in the Mineral Cabinet and practical exercises		3 Gr., 14 Se., 4 Ju., 7 So., 4 Fr., 2 Sp., 9 Sc.	43
Prof. H. B. Hill	3. Qualitative Analysis (chiefly laboratory work). — Lectures (about twenty during the year). — Laboratory work (nine or more hours a week)		1 Gr., 12 Se., 13 Ju., 5 So., 3 Fr., 3 Sp., 1 Sc.	38
Profs. Cooke and H. B. Hill, and Dr. Richards	4. Quantitative Analysis (chiefly laboratory work). — Lectures (about twenty during the year). — Laboratory work (nine or more hours a week)		1 Gr., 8 Se., 5 Ju., 2 Sp., 2 Sc.	18
Profs. Cooke and H. B. Hill, and Dr. Richards	4*a*. Quantitative Analysis (second course). — Laboratory work, with occasional lectures		1 Gr., 4 Se., 1 Ju., 1 Sp.	7
Prof. H. B. Hill	5. The Carbon Compounds. — Lectures (three times a week) and laboratory work (three to six hours or more a week)		3 Gr., 7 Se., 1 Ju.	11

COURSES OF INSTRUCTION. — CONTINUED.

Prof. Cooke	*6. Advanced Problems in Inorganic Chemistry, including Molecular Weights and Volumes, Thermo-Chemistry, and Specific Refractive Power. — Lectures (three times a week). — Laboratory work (averaging six hours a week)		2 Gr., 2 Se.	4
Prof. Cooke	[*7. Crystallography and the Physics of Crystals. — Lectures and practical exercises		Omitted in 1889–90.	
	*20. Special Advanced Study and Research:			
Prof. Cooke	(*a*) Determination of Atomic Weights. — Laboratory work (averaging more than nine hours a week)		1 Se.	1
Prof. Jackson	(*b*) Aromatic Compounds		Omitted in 1889–90.	
Prof. H. B. Hill	(*c*) Organic Chemistry. — Original investigation in the laboratory (ten hours a week and upwards)		1 Gr., 2 Se.	3
Prof. Jackson	(*d*) Inorganic Chemistry		Omitted in 1889–90.	
	NATURAL HISTORY.			
	BIOLOGY.			
Prof. Mark	2. Zoölogy. — Lectures (two or three a week) giving a general survey of the animal kingdom, with an outline of human physiology, and treating of certain general questions. — Laboratory work (three hours a week)	1st half-year	10 Se., 11 Ju., 18 So., 26 Fr., 6 Sp., 8 Sc.	79
Prof. Goodale	3. Botany. — Lectures (two and occasionally three a week) on the General Morphology and Development, and the Physiology of Flowering Plants. — Laboratory work (three or four hours a week for seven weeks)	2d half-year	19 Se., 19 Ju., 41 So., 40 Fr., 20 Sp., 11 Sc.	150

Prof. Farlow and Mr. G. H. Parker	5. Biology. — Study of types of plants and animals. — Lectures (three times a week). — Laboratory work (six hours a week)		2 Gr., 11 Se., 13 Ju., 14 So., 3 Sp., 3 Sc.	46
Mr. G. H. Parker	6. Zoölogy (second course). — Lectures (twice a week) on the Comparative Anatomy of Vertebrates. — Laboratory work (six to ten hours a week): dissection of typical Vertebrates: shark, bony fish, salamander, pigeon, and cat. The record of this work in the form of drawings and notes was kept by the student in a laboratory note-book		3 Gr., 11 Se., 3 Ju., 1 Sc.	18
Prof. Goodale	7. Botany (second course). — Review of the Morphology of Flowering Plants. — Vegetable Histology. — Laboratory work (five hours a week). — Lectures on Economic and on Physiological Botany. — During the second half-year, each student took two problems, one in Economic and one in Physiological Botany, on each of which a report, in the form of a thesis, was presented		2 Gr., 5 Se., 1 Ju., 1 So., 2 Fr., 1 Sp., 4 Sc.	16
Prof. Farlow	*23. Cryptogamic Botany. — Study of structure and development of the orders of Cryptogams. The course is designed for persons intending to become physicians or naturalists. — Lectures (twice a week) and laboratory work (six to eight hours a week)	2d half-year	1 Gr., 8 Se., 1 Ju., 1 Sc.	11
Prof. Mark	*13. Microscopic Anatomy. — Lectures (three times a week) on methods of microscopic study, and on the anatomy and histology of Hydra, Asteracanthion, Taenia, and Lumbricus. — Laboratory work (six to eight hours a week) on the same animals	1st half-year	1 Gr., 6 Se., 1 Sc.	8
Prof. Shaler	*14. Palaeontology. — Lectures (twice or three times a week). — Laboratory work (six hours) and a thesis		3 Gr., 5 Se., 1 Ju., 3 Sc.	12
Dr. Slade	*21. Comparative Osteology. — Lectures (once or twice a week). — Laboratory work (three hours a week)		2 Gr., 2 Se., 3 Sp.	7

COURSES OF INSTRUCTION. — CONTINUED.

	COURSES FOR SPECIAL RESEARCH.		
Prof. Mark	*9. Embryology. — Investigation of special subjects, the results of each presented in a thesis	7 Gr., 1 Se.	8
Prof. Hagen	*10. General Entomology	Omitted in 1889-90.	
Prof. Goodale	*11. Experimental Vegetable Physiology.—Systematic and Economic Botany. — Study of special topics. — Laboratory work (six hours and upwards a week)	1 So., 1 Sp., 1 Sc.	3
Prof. Farlow	*12. Structure and Development of Cryptogams. — Special research in the laboratory by graduates and advanced students	2 Gr., 1 Sp., 1 Sc.	4
Prof. Shaler	*17. Palaeontology (second course). — Laboratory work. — Theses	1 Gr.	1
	GEOLOGY.		
Prof. Davis	1. Physical Geography and Meteorology (elementary course). — Lectures (twice a week) and recitations in three sections (one hour each). — Laboratory work is assigned, but no regular hours are devoted to it by Instructor	13 Se., 13 Ju., 15 So., 22 Fr., 5 Sp., 8 Sc.	76
Prof. Davis	*20. Physical Geography and Meteorology (second course). — Lectures, individual conferences (once a week), and reports requiring six to eight hours a week of library work	2 Gr., 1 Se.	3
Prof. Shaler	4. Geology. — Lectures (twice a week). — Dana's Manual of Geology	5 Se., 17 Ju., 32 So., 65 Fr., 19 Sp., 11 Sc.	149

Mr. Harris	4a. Geology. — Two exercises (four hours) a week in the laboratory with geological models, maps, specimens, etc., until the spring recess; after the spring recess, six field exercises. — Occasional lectures		1 Gr., 11 Se., 5 Ju., 11 So., 19 Fr., 12 Sp., 7 Sc.	66
Profs. Shaler and Davis, and Dr. Wolff	*8. Geology (second course). — Lectures (two or three a week). — Lyell's Principles of Geology. — Field-work in the fall and spring		1 Gr., 16 Se., 11 Ju., 12 So., 3 Sp., 7 Sc.	50
Prof. Shaler	*15. Historical Geology. — Laboratory work (nine hours a week). — Field-work (six weeks in summer)		1 Sc.	1
Profs. Shaler and Davis, Dr. Wolff, and Mr. Harris	*16. Geological Field-work, for training in the principles of Geological Surveying. — Field-work (six weeks in summer). — Reports. — Theses. — Attendance at weekly conference meetings required		1 Gr., 1 Se., 4 Sc.	6
Prof. Whitney	*18. Economical Geology. — Lectures	4 2d half-year	2 Gr., 4 Se., 2 So., 1 Fr., 1 Sp., 3 Sc.	13
Dr. Wolff	22. Petrography. — Laboratory work (ten to eighteen hours a week devoted to special investigations)		2 Gr.	2
Prof. Whitney	[*25. Mineral Veins and Metalliferous Deposits	1	Omitted in 1889–90.	

COURSES OF INSTRUCTION. — CONTINUED.

	COURSES FOR SPECIAL RESEARCH.		
Prof. Mark	*9. Embryology. — Investigation of special subjects, the results of each presented in a thesis	7 Gr., 1 Se.	8
Prof. Hagen	*10. General Entomology	Omitted in 1889-90.	
Prof. Goodale	*11. Experimental Vegetable Physiology.—Systematic and Economic Botany. — Study of special topics. — Laboratory work (six hours and upwards a week)	1 So., 1 Sp., 1 Sc.	3
Prof. Farlow	*12. Structure and Development of Cryptogams. — Special research in the laboratory by graduates and advanced students	2 Gr., 1 Sp., 1 Sc.	4
Prof. Shaler	*17. Palaeontology (second course). — Laboratory work. — Theses	1 Gr.	1
	GEOLOGY.		
Prof. Davis	1. Physical Geography and Meteorology (elementary course). — Lectures (twice a week) and recitations in three sections (one hour each). — Laboratory work is assigned, but no regular hours are devoted to it by Instructor	18 Se., 13 Ju., 15 So., 22 Fr., 5 Sp., 8 Sc.	76
Prof. Davis	*20. Physical Geography and Meteorology (second course). — Lectures, individual conferences (once a week), and reports requiring six to eight hours a week of library work	2 Gr., 1 Se.	3
Prof. Shaler	4. Geology. — Lectures (twice a week). — Dana's Manual of Geology	5 Se., 17 Ju., 32 So., 65 Fr., 19 Sp., 11 Sc.	149

Mr. Harris	4*a*. Geology. — Two exercises (four hours) a week in the laboratory with geological models, maps, specimens, etc., until the spring recess; after the spring recess, six field exercises. — Occasional lectures		1 Gr., 11 Se., 5 Ju., 11 So., 19 Fr., 12 Sp., 7 Sc.	66
Profs. Shaler and Davis, and Dr. Wolff	*8. Geology (second course). — Lectures (two or three a week). — Lyell's Principles of Geology. — Field-work in the fall and spring		1 Gr., 16 Se., 11 Ju., 12 So., 3 Sp., 7 Sc.	50
Prof. Shaler	*15. Historical Geology. — Laboratory work (nine hours a week). — Field-work (six weeks in summer)		1 Sc.	1
Profs. Shaler and Davis, Dr. Wolff, and Mr. Harris	*16. Geological Field-work, for training in the principles of Geological Surveying. — Field-work (six weeks in summer). — Reports. — Theses. — Attendance at weekly conference meetings required		1 Gr., 1 Se., 4 Sc.	6
Prof. Whitney	*18. Economical Geology. — Lectures	4 2d half-year	2 Gr., 4 Se., 2 So., 1 Fr., 1 Sp., 3 Sc.	13
Dr. Wolff	22. Petrography. — Laboratory work (ten to eighteen hours a week devoted to special investigations)		2 Gr.	2
Prof. Whitney	[*25. Mineral Veins and Metalliferous Deposits	1	Omitted in 1889–90.	

group lacking: in Italian and Spanish, owing to the small number of courses in each, and in History, where a peculiar and interesting provision was devised for graduate students. The instruction in this department designed for undergraduates, consisting of three introductory and nine more advanced courses, and aggregating from twenty-nine to thirty-three hours a week, covers substantially the same ground, with some change of detail, as heretofore. The instruction provided for graduates consists, in the first place, of nine courses which deal with the same subjects as the nine more advanced undergraduate courses, and are designed for graduates who wish to carry on the general subject of history. The student in one of these courses is at liberty to attend the lectures in the corresponding undergraduate course, or he may secure the knowledge there imparted by private study. The special provision made for him is the opportunity for conference at stated times with the instructors, who aim to give him such counsel and guidance as may be adapted to his maturity of mind and seriousness of purpose, particularly in reference to the study of sources. The subjects of these nine courses are: early mediaeval institutions; constitutional history of England to the Tudor period; history of the government and institutions of France to the reign of Louis XIV.; general church history; constitutional history of England from the Tudor period to the accession of George I.; history of American institutions to 1783; constitutional development of the United States; history of continental Europe (chiefly France and Germany) since the Seven Years' War; constitutional history of England since the accession of George I. To these are added three more courses for graduates: on federal government (historical and comparative); on the leading principles of constitutional law; on the historical development of international law.

Parallel with this classification of courses according to the grade of the students for whom they are adapted, and partly coinciding with it, there are found in many departments other subdivisions, based on the character of the subject or on the method of instruction. The development of the higher instruction in many departments had proceeded so far that the Faculty deemed it advisable to agree upon a uniform nomenclature to designate the new features. Most prominent among these are the 'Courses of Research,' under which the Faculty directed that each department should group those of its courses in which the primary object is training in research. These courses naturally require, as a rule, the maturity of a graduate, but are sometimes taken by undergraduates of marked proficiency. The plan provides stated meetings with the instructor, but the distinguishing feature of these courses is the independent work of the student in

some line of research, the results of which he is expected to present in written form. The practice of conducting such courses has gradually extended until they are now found in Sanskrit, Classical Philology, English, German, French, Romance Philology, Philosophy, Political Economy, History, Fine Arts, Mathematics, Physics, Chemistry, Botany, Zoölogy, and Geology. The subjects or fields of investigation are in some cases left to be arranged by the student with his instructor, but in some departments they are announced by the several instructors in advance. In some cases the student pursues his own topic independently, in others a number of students work together in the same field or study closely related topics, and the method pursued is that of the 'Seminary.'

This word has also obtained a footing among us, and is now defined by the Faculty as applicable in our announcements to courses organized, on the recommendation of a department, for training in research, with stated meetings at which the students present for criticism and discussion the results of their studies. Thus the six 'Courses of Research' in History are called Seminaries, the fields of investigation being as follows: church and state in the Middle Ages; local government during the Middle Ages, especially in Great Britain; English history in the period of the Long Parliament; studies in the history of England and France, 1775 to 1800; studies in American history; the history of American diplomacy.

The oldest and most fully organized seminary is that in Classical Philology, which is under the charge of two directors chosen by the instructors in the department. The meetings, which occur twice a week, each session occupying an hour and a half, are ordinarily devoted to the text-criticism and interpretation of a Greek and a Latin author. Each member of the Seminary is further expected to investigate, in the course of the year, some question in Classical Philology, under the guidance of one of the instructors in the department; and the results of his investigation, embodied in a thesis, are discussed at a public meeting of the seminary, at which all instructors and students of the classics are invited to be present.

Another outgrowth of our system of instruction is the 'Conference,' which is the term applied to a series of meetings of instructors and students in a department for the discussion of papers and topics of common interest, the work in which does not count for any degree. These useful institutions are regularly established in the following departments: Semitic, Sanskrit, Modern Languages, Philosophy, History, Geology. The proceedings at these meetings are more or less informal and social, serving to bring instructors and students into more familiar contact, to the manifest advantage of both. The

same end is served in other departments by societies and clubs which do not appear in our Announcement, but whose work is quite as beneficial as that of the 'Conferences.' These are the Classical Club, the English Club, the Deutscher Verein, the Conférence Française, the Philosophical Club, the Natural History Society.

Some of the changes of detail in certain departments deserve to be noticed. The courses in biology were divided and placed under the separate heads of Botany and Zoölogy. In Greek an advanced course for Freshmen was introduced, corresponding to the similar course which has been conducted for some years in Latin. The German department, with the consent of the Faculty, tried the experiment of establishing, alongside of the present elementary course of three hours a week (German *A*), another of five hours, in which they hope, by the greater concentration of the students' work, to accomplish substantially as much in one year as is now done, in Courses *A* and 1, in three hours a week for two years, or at least to equal the attainments of those whose study of the language at school is supplemented by one course in College. The inferiority of the ordinary school training in German to that imparted in German *A* led the department to institute a special course for those who have passed the admission examination in elementary German, in the hope that by placing them in a class by themselves and giving them separate attention, they may bring them, by the end of the year, up to the standard of those who have had the advantage of the College training from the beginning. In French an additional course for second-year students, parallel to French 1, was introduced, designed for those who do not propose to carry their study of the language beyond that year.

The list of prescribed studies was modified by the omission of English *D* and Physics *A*. The omission of the former (the Senior course in forensics) was balanced by two important compensations. The Junior and Senior forensic courses have been the subject of a series of experiments in recent years, and in their latest phase demanded considerably more work of the student than the former simple requirement of four forensics each year. The additions consisted of a brief before each forensic and a course of lectures on argumentative composition, and although attendance on the lectures was not compulsory, they could not be neglected by a conscientious student. The new arrangement omits the Senior course and enlarges the Junior course so that it now embraces, besides the lectures, the preparation of a brief based on some masterpiece of argumentative composition, and five forensics, each preceded by a brief. The work of the course, as thus constituted, may be fairly estimated to be about double that

of the old requirement of four forensics. Furthermore, the loss of the Senior forensics is more than made good for those who wish to continue their practice in argumentative writing by the establishment of an elective half-course, in which the work consists of eight briefs and forensics, with lectures, conferences, and discussions.

The omission of Physics *A*, a course of about twelve weekly lectures in the second half-year, from the list of prescribed studies, does not dispense with the instruction given, but merely exempts the Freshmen class from the examination hitherto held at the end of the year. The course now takes its place among the introductory courses which have already become a feature of several departments. In Greek such a course has been provided for Freshmen for two years past. The German department had a similar course last year. This year, introductory (evening) lectures are given in the departments of Philosophy and Romance Philology. Such courses may be made to serve a very useful purpose by enabling a student to get some notion of the nature and scope of a subject and of its value to him for mental training or future use, before committing himself to the study of it.

The following new courses, in addition to those already referred to, deserve mention: —

Political and literary history of the Bagdad Califate. *One hour.* Professor TOY.

The tragedies of Aeschylus. *Three hours.* Professor GOODWIN.

The Athenian expedition to Sicily in 415–413 B.C., studied in connection with the sixth and seventh books of Thucydides. *Two hours, second half-year.* Professor GOODWIN.

Study of selected topics in the private life of the Greeks. *Two hours.* Professor J. W. WHITE.

Roman archaeology (architecture and engineering; topography and architectural history of the city of Rome). *Two hours.* Dr. TARBELL.

General history of German literature. *Three hours.* Professor FRANCKE.

Germanic mythology. *Three hours, first half-year.* Professor KITTREDGE.

Middle High German. *One hour.* Professor VON JAGEMANN.

French grammar. Critical study of modern texts. *Two or three hours.* Professor COHN.

The psychological basis of religious faith. *One hour.* Professor EVERETT.

The content of Christian faith. *Three hours.* Professor EVERETT.

Contemporary systems. The philosophy of Lotze. *Three hours.* Dr. SANTAYANA.

Finite differences; theory of numbers; calculus of variations; curvature of surfaces. (Lectures by the students.) *One hour.* Professors J. M. PEIRCE, B. O. PEIRCE, and BYERLY.

Mineralogy of common rocks. Metallic ores, with blow-pipe assaying and the simpler methods of furnace assaying. *Two hours and laboratory work.* Dr. HUNTINGTON.

Anatomy and development of animals (course of research). Professor MARK.

Structural and dynamical geology. *Two hours.* Mr. HARRIS.

Petrography (course of research). Dr. WOLFF.

But no statement of details can give an adequate idea of the whole body of instruction now offered in arts and sciences. To obtain this, it is necessary to study the Announcement itself and the numerous departmental descriptive pamphlets. The useful practice begun in 1880 by the geological department, of publishing in a separate pamphlet a description of its resources and its methods of instruction, has been so widely followed that this year all but four departments are thus provided. The object of these pamphlets is two-fold: first, to give to our own students fuller information than is possible within the necessary limits of the general Announcement, and such advice as will assist them in laying out an intelligent plan of study; secondly, to make known to them and to students in other colleges the opportunities offered here for advanced study and research. To any one who desires to inform himself on the present resources of the University for teaching in the various fields of liberal learning, these pamphlets are the best guide.

Any one who will compare with former Announcements the Announcement for the present year, as elucidated by the descriptive pamphlets, will see clearly that much progress has been made by the attention which the Faculty gave to the subject last spring. The improvement has not been for the benefit of any particular class or grade of students. I have dwelt at some length on the better organization of the higher instruction, which naturally claimed a large share of the Faculty's attention in view of the prospective organization of the Graduate School; but these pamphlets give evidence also of a careful study, based on actual experience, of the needs of the undergraduate. I have already mentioned the establishment of an advanced course for Freshmen in Greek; the careful adjustment of the elementary courses in German to the various conditions which that department finds it has to deal with; the addition of a parallel course in second-year French; the better arrangement of forensic work; the introductory lectures. But here again no statement of details can do justice to the subject. The reader of the Announcement will see that more than one department has studied its whole scheme of instruction anew and effected a better organization of its courses. Particular attention may be called to the provision made for the study of French literature of all periods, and to the better grouping of the German courses. Especially worthy of notice are the improved scheme and the rich resources of the philosophical department. Besides the introductory lectures already mentioned, which treat in brief outline of representative men and issues of modern philosophy, there is a formal introductory course of three hours a week through the year, in which three instructors unite in

teaching the elements of logic, psychology, and metaphysics, as a basis for the study of the 'systematic' and 'historical' courses which follow. Under the former head, instruction to the extent of eleven hours a week is offered in psychology, cosmology, ethics, the philosophy of religion, and the psychological basis of religious faith. Under the head of 'Historical Courses' are included seven courses with from twenty-three to twenty-four hours a week of instruction, treating of the comparative history of religions, Greek philosophy, Descartes, Spinoza, and Leibnitz, English philosophy, German philosophy from 1770 to 1830, the philosophy of Lotze, the ethics of current social questions, the content of the Christian faith. With one exception all of these courses are offered for the present year. Next in this classified list come the Courses of Research, under which head Professors Palmer, James, and Royce announce seminaries in ethics, psychology, and metaphysics, respectively, and Professor Palmer further offers aid and guidance to advanced students who wish to pursue individual investigations of questions in ethics. Finally, the department holds a 'Conference' twice a month at the house of one of the instructors, 'for friendly intercourse and informal discussion of philosophical subjects.'

This sketch of the scheme of instruction in philosophy may serve to illustrate the tendency of the movement which is going on in our whole system of instruction. The history of the elective system has been the history of a transition from instruction organized by years of the college course to instruction organized by departments of study. In the great question of the new organization of the Graduate School, the controlling fact was the solidarity of the department; and it is this fact that points out the way of our future growth. Just now it is the higher instruction that needs especially to be fostered; but no part can be strengthened without adding strength to the rest. For the development of many of the departments there is now great need of a fuller equipment of material resources, in the way of lecture and recitation rooms; of maps, photographs, casts, and other illustrative apparatus; of publication funds; above all, of working departmental libraries and rooms for reading and study. The adequate equipment of some departments will only be attained when they are housed in buildings of their own, as the departments of physical and natural science are housed to-day. It is gratifying to record that two important steps in this direction have recently been taken. Within a few years past a number of departments have formed small 'class-room libraries' for the use of their students, ranging from two dozen to about seven hundred volumes each. The generosity of certain friends of the College has now enabled the

classical and historical departments to procure departmental libraries of a few thousand volumes each, and accommodation for these has been provided on the first floor of Harvard Hall. The west lecture room on the same floor is to be fitted up for the use of the classical and other literary departments, which have heretofore been without adequate accommodation in this particular.

The whole number of elective courses of instruction offered for the present year was two hundred and fifty-five, of which one hundred and forty-six are rated as full courses and eighty-one as half-courses; one is rated as equivalent to two courses, one to a course and a half; and twenty-six courses of research, though usually taken as full courses, may be estimated differently according to the amount and difficulty of the work required. Omitting the introductory lectures and the voluntary classes in Elocution, the whole body of instruction offered for the present year is equivalent to two hundred and nineteen and a half full courses. The distribution of this aggregate among the several departments is shown in the following table, together with the corresponding statistics for each of the last seven years: —

Amount (in full courses) of instruction offered in	1884–85.	1885–86.	1886–87.	1887–88.	1888–89.	1889–90.	1890–91.
Semitic	8	8	8	9	9	11	12
Sanskrit and Zend	4	4	4	4	2	4	4
Greek	15½	13¾	14¼	13½	13½	14	13
Latin	12	14¾	12¾	13½	13	12	10½
Classical Philology	3	2	1	2	1	1	6½
English	8½	8½	7½	10	11	10	12
German	8	7½	8	7	9	9	14
Germanic Philology	..	..	..	..	..	2	2
French	8½	9½	8	8	8	9	11½
Italian	3	3	3½	3	3	3	4
Spanish	3	3	3	3	3	3	3
Romance Philology	..	..	1½	2½	4½	4½	3½
Philosophy	9½	10	11½	11	9½	11½	15½
Political Economy	5½	6	7½	7½	6½	6½	7
History	13	11	14½	15½	18½	17½	17
Roman Law	1½	1½	1½	1	1	1	1
Fine Arts	2½	4	4	3½	3½	3½	4
Music	5½	5	5	4	3½	3½	3½
Mathematics	14½	15½	16½	16½	15	15	19½
Engineering	..	..	..	..	..	..	9
Physics	6½	7½	8½	10	12½	13	12
Chemistry	8	8	9½	12	11½	12½	15
Natural History	16	18	20	18½	20	19½	20
Total	156	160½	170	175	178½	186	219½

The question of the organization of the graduate department has been for some years past one of growing importance. The position of the department was peculiar. It had no faculty of its own. Its instruction was provided by the College Faculty. The work of its students, their examinations, and their degrees were formally under the supervision of the Academic Council, but were practically in charge of committees of that body, the membership of which was mainly made up from the College Faculty. The department had outgrown this provisional arrangement, and was at some disadvantage in its anomalous situation.

With this question was inseparably bound up another question — that of the proper adjustment of the College course to graduate and to professional studies. The growth of the graduate department in point of numbers has brought it up to the proportions of a college class of twenty years ago. A considerable part of the instruction now offered in arts and sciences is above the highest standard of twenty years ago, and above that of the average American college of to-day. The existence of this great body of advanced instruction, and the demand for it by a large and growing body of students, are the data of a problem which did not exist two decades ago, but which to-day presses for a solution. The traditional college system does not fit the new state of things. To lavish on a four years' course the wealth of instruction now provided — the instruction offered for 1890–91 amounts to a little more than twelve times the college work required for the degree — might seem almost like extravagance and waste. With the growth of this instruction the standard of the Bachelor's degree has advanced, pushed forward by increased requirements for admission, and improved in quality by the consequent better training of the undergraduate. But the advance on this line has been carried to its utmost limit, and indeed has gone so far as to give just ground for complaint that students are kept too long from their professional studies. The new conditions cannot be met by the old system. The course of liberal training is no longer a matter of four years, but of five, six, or seven years. It is no longer a course in which the baccalaureate is the ultimate goal, but one in which the baccalaureate is merely a first degree in arts; a station on the road to higher liberal studies, or a point of divergence to professional study; a stopping place only to that smaller number, a third or a quarter of the whole, whose tastes or necessities lead them to give up their studies at that stage for the active pursuit of a livelihood.

The immediate question, then, is of the proper adjustment of the college course to the graduate course and to the professional school. But the consideration of it necessarily takes a wider range, for the

whole matter. The effect of this provision would be to place the requirement of college work for the degree about half-way between the regular work of the first three years under the present system (14.2 courses) and that of the whole four years (18.2 courses). It is evident at once that the arrangement proposed is an elastic one, and that under it the length of the college course would be not a fixed but an adjustable quantity, to be determined for each student by the conditions of his own case. These conditions vary widely. At the outset, there is a great difference among those who come to College together in the same class as to the amount and quality of their preparatory training. Some enter heavily conditioned; others not only come in clear of conditions, but have anticipated one or more college studies. Some are well trained and can work with speed and efficiency; others are hampered by a defective training and find the same work slow and laborious. Again, there are diversities of ability and of temperament which make an elastic arrangement desirable. At present the college regulations prescribe a maximum and a minimum of work which a student is allowed to take in each year. The minimum is, for Freshmen, 5.2 courses; for Sophomores, 4.6 courses; for Juniors, 4.4 courses; for Seniors, 4 courses. The upper limit allows one additional course in the Freshman year and two in any subsequent year. Between these limits there is every variety. Some, of course, whether from indolence or from interest in other things, will do as little as the rule permits; others voluntarily take more courses than are required. Many hard-working students confine themselves to the required amount, preferring to concentrate their work on a small number of subjects. Very few have availed themselves of the regulation quoted above to devote their whole time to three courses in their last year. The disposition of the majority is to take more than the required amount.

The second proposition of the Faculty is designed to provide a plan adapted to these various conditions. It is not correctly described as a proposition to reduce the college course to three years. It is a proposition to make it possible by a moderate reduction of the requirements for the degree — which would still leave the standard of the degree considerably higher than it was twenty years ago — to make it possible for those students whose best interests are served by their graduation in three years to do so under advantageous conditions. It cannot yet be looked upon as a definite or final solution of the problem set forth above as to the relation of the College to graduate and to professional studies. It is in the nature of a cautious experiment. How it would result no man can now foresee. Certainly it would produce no sudden or radical changes. Among

the great mass of the present students there is unquestionably a sentiment in favor of the traditional four-years' course. If it should be made possible by moderate exertion to graduate in three years, there is nothing in the present attitude of the students to indicate that the majority would restrict their liberal training to this three-years minimum, any more than they are disposed to confine themselves to the minimum requirement of courses in any year. And these facts may well reassure those who fear that a general lowering of the standard of education would result from the adoption of the Faculty's proposals.

The number of those who have accomplished the requirements for the degree in three years has never been large, though in the past two years there has been a decided increase. In the table on pp. 108, 109 I have gathered the records of this class of cases for the past ten years. The persons represented are those who, having entered as Freshmen, performed the work of the college course in three years. This definition of course excludes all who entered with advanced standing, though no clear line can be drawn between some of those admitted as Sophomores and the Freshmen who anticipated more than two courses. It also excludes nine persons who accomplished the work of about three years and a half in three years, and who therefore ought to be mentioned in this connection. Three of them were students who were permitted at the end of their Junior year to register in the Medical School and to complete the remaining half-year of their college course while pursuing their professional studies.

The question of the organization of the graduate department was also by general consent left to the College Faculty, and was considered by them with great care. There was in the beginning a strong feeling that the department would have the best chance for growth if placed on an independent footing beside the professional schools, with its distinction from the College emphasized as strongly as possible. Perhaps a majority of the Faculty had contemplated an organization on the model of the philosophical faculty of a German university, and to the end a small but earnest minority maintained this view. But in the progress of the discussion the essential difference between our situation and that of a German university became clear, and the majority of the Faculty were convinced that the conditions imposed upon us by our historical development made such a separation of the undergraduate and graduate departments unnatural, if not impossible. Two facts, or rather one fact in two aspects, controlled the situation. One of these I have already had occasion to refer to — the essential continuity of the instruction in each de-

Year of Graduation.	Students.	Number of courses performed.					No. of courses required for degree.	Degrees with distinction.	Honors and Honorable Mention.
		Anticipated.	First year.	Second year.	Third year.	Total.			
1883	1.	. .	5.3	8.	6.7	20.	19.	Magna cum laude	Honorable Mention in Mathematics, Chemistry, Natural History.
1884	1.	2.55	6.75	5.5	4.2	19.	"		
	2.	1.	6.6	6.3	5.4	19.3	"		
	3.		5.3	7.	6.7	19.	"		
	4.		5.3	7.	6.7	19.	"	Cum laude	Second-year Honors and Honorable Mention in Mathematics.
	5.		5.3	7.2	7.	19.5	"	Magna cum laude	Highest Second-year Honors in Classics. Final Honors in Classics. Honorable Mention in Greek and Latin.
1886	1.	2.	5.3	5.	6.7	19.	"	Magna cum laude	Honorable Mention in English Composition, Political Economy, Physics.
1887	1.	3.	6.4	4.8	5.2	19.4	18.4	Cum laude	Honorable Mention in Semitic, English Composition.
	2.	1.	4.4	6.6	6.4	18.4	"		
1888	1.		5.9	7.1	6.4	19.4	"	Cum laude	Honorable Mention in Engineering.
	2.	2.2	5.8	5.2	5.7	18.9	"	" "	Honorable Mention in Natural History.
	3.		5.4	5.6	7.4	18.4	"	" "	

1889	1.	2.	5.4	5.6	5.4	18.4	"	Magna cum laude	Second-year Honors in Classics and in Mathematics. Honorable Mention in Mathematics and Natural History.
	2.	.5	6.4	6.1	5.4	18.4	"	Cum laude	Honorable Mention in French.
	3.	3.4	6.	4.8	4.2	18.4	"		
	4.		7.	6.2	5.2	18.4	"		Honorable Mention in English Composition.
	5.		4.4	6.2	7.8	18.4	"		
1890	1.	4.	5.4	4.6	4.4	18.4	"	Cum laude	Honorable Mention in History.
	2.	.5	6.9	6.1	5.4	18.9	"	Magna cum laude	Second-year and Final Honors in Classics. Honorable Mention in Greek and Latin.
	3.		5.4	6.8	6.2	18.4	"		Honorable Mention in French.
	4.		5.9	7.1	6.4	19.4	"	Magna cum laude	Honorable Mention in Philosophy and Natural History (*bis*).
	5.		6.4	6.6	5.9	18.9	"	Summa cum laude	Highest Second-year Honors in Classics. Honorable Mention in Greek.
	6.		6.4	5.6	6.9	18.9	"	Summa cum laude	Honorable Mention in English Composition and Natural History (*bis*).
	7.		5.4	5.6	7.4	18.4	"		
	8.	1.	5.4	6.1	5.9	18.4	"	Magna cum laude	Highest Second-year Honors in Classics. Honorable Mention in French.
	9.	3.	5.4	6.6	6.4	18.4	"	Summa cum laude	Highest Honors in Modern Literature. Honorable Mention in English, German, Italian.
	10.		5.4	4.6	5.4	18.4	"		

partment of study, the impossibility of drawing any natural line of division between undergraduate and graduate courses. The second fact appeared when the attempt was made to formulate the constitution of the proposed graduate and undergraduate faculties: there was but one faculty, and unless some purely arbitrary method of selection were resorted to, entirely at variance with the principle on which our faculties are constituted, the two faculties would be two in name only.

The College Faculty therefore adopted, as the basis of its scheme of reorganization, a single faculty, which it proposed to call the Faculty of Arts, to have charge of the graduate department (to be called the Graduate School), Harvard College, and the Lawrence Scientific School. With this fundamental question settled, the working out of the details was comparatively easy. The plan adopted provided a Dean of the Faculty, who should also be Dean of the Graduate School, a Dean of the College, and a Dean of the Scientific School. It provided, further, for each of the three departments an Administrative Board, with the Dean as chairman, to whom the Faculty should commit at its discretion, with full power, the enforcement of its regulations and the conduct of all ordinary matters of administration and discipline, subject, however, to the statutory limitation that no student should be dismissed or expelled from the University except by a two thirds vote of the Faculty itself. It was proposed that the administrative boards should consist (exclusive of the Dean in each case) of fifteen members for the College, nine for the Graduate School, and six for the Scientific School; and one third of the members of each board, unless reappointed, were to retire yearly. To the Faculty itself were to be reserved the power to make all regulations and also the following matters of administration: instruction, including the selection and arrangement of courses, lecture hours, and examinations; admission, with or without examination; recommendation for degrees; award of pecuniary aids; appointment of advisers for new-comers; oversight of special students in Harvard College.

The proposition to reduce the requirements for the degree of Bachelor of Arts is still in the hands of the Board of Overseers. The plan of reorganization was adopted by the governing boards, with some changes of detail. With its final adoption by the Overseers, May 21, 1890, the College Faculty ceased to exist. Although the same members reassembled on the twenty-seventh of May as the Faculty of Arts and Sciences, the change was something more than a change of name. The new organization is significant of a great enlargement in the scope and complexity of our work, and the new

Faculty has been equipped with larger powers that it may meet larger responsibilities. But in the work itself there has been no break. It has reached its present proportions by no sudden change, but by natural growth. In its essential spirit and aim it is the same work which Harvard College has done from the beginning.

CLEMENT LAWRENCE SMITH, *Dean.*

DECEMBER, 1890.

THE LAWRENCE SCIENTIFIC SCHOOL.

TO THE PRESIDENT OF THE UNIVERSITY:

SIR, — The following report of the Lawrence Scientific School for the year 1889–90 is respectfully submitted: —

The whole number of students connected with the School was sixty-eight, of whom twenty-eight were regular students. Seven students received the degree of Bachelor of Science at Commencement, of whom three had previously received the degree of Bachelor of Arts, and one that of Master of Arts, from Harvard College.

The requirements for admission to the School and the instruction in the prescribed courses remain practically as they were at the beginning of the year.

The Corporation, at the request of the Faculty of this School, has opened the Normal School Scholarships, which formerly were restricted to graduates of the normal schools in Massachusetts, to the graduates of all State normal schools in the United States. The effect of this action is already felt, and there is every probability that next year, for the first time, the whole number of these scholarships will have to be assigned. The students who have availed themselves of these scholarships have made excellent records; and with one exception they are all teaching or looking forward to teaching. It should be noted that until we have learned by experience of the advancement of these students we are unable to classify them; hence they stand in our lists as special students.

Instruction in the use of tools is now given, as it was last year, in the Cambridge Manual Training School. The Corporation has made such arrangements this year that the number of students who take this instruction is unlimited. The authorities of the Training School have shown great readiness to adjust their teaching to the needs of our students, and the present arrangement is in every way as satisfactory as they can make it. We must, however, look on this arrangement as only a temporary one, as, with the growth of the Training

School and the increase which we may fairly expect in the number of students who seek this instruction, the capacity of the Training School must soon be reached. We need, therefore, a workshop of our own.

It can now be stated that the course in practical field-astronomy, which has been asked for in former years, will be provided next year; and that the course in scientific German has been provided by the kindness of the German department.

I renew the statement that a pressing need of the School is a Professorship of Architecture. Supplied as we now are with all the instruction which is commonly and properly given in a course in Architecture except that which would be given by one more professor, it would seem that the friends of the School ought to provide the endowment necessary to establish this professorship.

Though relating to the year 1890–91, the statement may be allowed here that the number of students in the School continues to increase, being at the present time eighty-nine.

W. S. CHAPLIN, *Dean.*

DECEMBER 1, 1890.

THE GRADUATE DEPARTMENT.

TO THE PRESIDENT OF THE UNIVERSITY:

SIR, — I have the honor of presenting my report for the academic year 1889–90 on the state of the Graduate Department; now the Graduate School.

In consequence of my absence from the University during the year, the duties belonging to the Secretary of the Academic Council were performed by the Secretary of the University, Mr. Frank Bolles. I beg to express my high sense of the excellent manner in which those duties were discharged; and to take this opportunity of saying that Mr. Bolles's active and intelligent interest in this Department in recent years has contributed greatly to its prosperity and vigor. In returning to the charge of the administrative business of the School, I rely on receiving valuable assistance from his zeal in furthering its healthy growth and detecting its needs.

The number of students registered in the Department in any part of the year was one hundred and eleven; of this number fifteen were classed as non-resident students, and ninety-six as resident students. The following table shows the amount and nature of the studies pursued by the students registered in the Department, and the proportion among such students of graduates and non-graduates of this University: —

Resident students doing full work as members of the Department for the whole academic year	62	
Resident students not doing full work, or not working for the whole year	34	96
Non-Resident students holding fellowships	11	
Non-Resident students not holding fellowships	4	15
Students (wholly or mainly) in Philology and Literature	33	
Students in Philosophy, History, Law, Political Science, Fine Arts, and Music	87	
Students in Mathematics, Physics, and Chemistry	22	
Students in Biology and Geology	19	111
Students continuing in this Department from 1888–89	56	
Students not registered in this Department in 1888–89	55	111
Harvard Bachelors of Arts or Science, not previously graduated elsewhere	62	
Harvard Bachelors of Arts, previously graduated elsewhere	11	
Students not holding the Harvard degree of A.B. or S.B.	38	111
Harvard Bachelors of Arts or Science, not holding the Harvard degree of A.M., Ph.D., or S.D.	50	
Students holding the Harvard degree of A.M., Ph.D., or S.D.	34	
Students holding no Harvard degree in Arts, Philosophy, or Science	27	111

The number of degrees given at the end of the year 1889–90 to graduate students, or upon recommendation by the Faculty of Arts and Sciences to professional students, is shown in the following table: —

A.B. to resident graduate students	8	
A.M. to resident graduate students	27	
A.M. to professional students on special courses of study	3	
A.M. to professional students with a professional degree	24	
Ph.D. to resident graduate students	8	65
A.M. or Ph.D. to Harvard Bachelors of Arts	41	
A.M. or Ph.D. to persons not Harvard Bachelors of Arts	21	62
A.B., A.M., or Ph.D. to graduate students, or on the ground of past studies in the Graduate Department	38	
A.M. to professional students	27	65

The following is a list of the persons admitted to the degree of *Doctor of Philosophy and Master of Arts*: —

Charles William Colby, A.B. (*McGill Univ.*) 1887, A.M. (*Harvard Univ.*) 1889; in Ecclesiastical History.

August Frederic Foerste, A.B. (*Denison Univ.*) 1887, A.M. (*Harvard Univ.*) 1888; in Geology.

Herman Wadsworth Haley, A.B. (*Amherst Coll.*) 1887, A.M. (*Harvard Univ.*) 1888; in Classical Philology.

Thaddeus William Harris, A.B. 1884, A.M. 1885; in Geology.

John Matthews Manly, A.M. (*Furman Univ.*) 1888, A.M. (*Harvard Univ.*) 1889; in English.

William Albert Setchell, A.B. (*Yale Univ.*) 1887, A.M. (*Harvard Univ.*) 1888; in Botany.

William Codman Sturgis, A.B. 1884, A.M. 1888; in Botany.

Edson Leone Whitney, A.B. 1885, A.M. 1888, LL.B. (*Boston Univ.*) 1887; in American History.

The fellowships were held, in the year 1889–90, by the following persons: —

Non-Resident Fellows.

Harris Fellowship, C. F. A. Currier, A.B. 1887, A.M. 1888, (*first year*), studying History and Constitutional Law at Berlin.

Rogers " J. H. Gray, A.B. 1887, (*first year*), studying Political Science at Halle.

" " F. L. Van Cleef, A.B. (*Oberlin Coll.*) 1884, (*Harvard Univ.*) 1885, (*second year*), studying Greek and Archaeology at Bonn.

Parker " M. Bôcher, A.B. 1888, (*second year*), studying Mathematics at Göttingen.

" " L. L. Jackson, A.B. 1885, Ph.D. 1888, (*first year*), studying Chemistry at Heidelberg.

" " J. W. Mack, LL.B. 1887, (*third year*), studying Comparative Jurisprudence at Berlin.

" " W. F. Osgood, A.B. 1886, A.M. 1887, (*third year*), studying Mathematics at Erlangen.

Kirkland " L. E. Gates, A.B. 1884, (*second year*), studying English Literature and History in London.

Walker " A. H. Lloyd, A.B. 1886, A.M. 1888, (*first year*), studying Philosophy at Berlin.

Tyndall Scholarship, D. W. Shea, A.B. 1886, A.M. 1888, (*second year*), studying Physics at Berlin.

Paine Fellowship, E. Cummings, A.B. 1883, A.M. 1885, (*second year*), studying Social Science in Great Britain.

Resident Fellows.

Morgan Fellowship, C. W. Colby, A.B. (*McGill Univ.*) 1887, A.M. (*Harvard Univ.*) 1889, (*second year*), studying History.

" " A. F. Foerste, A.B. (*Denison Univ.*) 1887, A.M. (*Harvard Univ.*) 1888, (*second year*), studying Geology.

" " H. W. Haley, A.B. (*Amherst Coll.*) 1887, A.M. (*Harvard Univ.*) 1888, (*second year*), studying Classical Philology.

" " J. L. Love, Ph.B. (*Univ. of North Carolina*) 1884, (*first year*), studying Mathematics.

" " J. M. Manly, A.M. (*Furman Univ.*) 1888, (*Harvard Univ.*) 1889, (*first year*), studying English Philology.

Ozias Goodwin Memorial Fellowship, W. Paul, A.B. 1889, (*first year*), studying History and Constitutional Law.

Henry Bromfield Rogers Memorial Fellowship, J. G. Hume, A.B. (*Toronto Univ.*) 1887, A.M. (*Harvard Univ.*) 1889, (*first year*), studying Ethics.

One of the Morgan fellowships was vacant, in consequence of the necessary change of plans of the appointee. The Memorial fellowships, founded in 1889 by Mr. William Story Bullard in grateful and affectionate remembrance of three friends, and designed for students of Political Economy, of Constitutional or International Law, and of Ethics in its relations to Jurisprudence or Sociology, respectively, were offered for the first time for 1889–90; that which bears the name of Henry Lee remaining vacant, on account of no suitable candidate presenting himself at the time of making appointments.

At the close of the academic year, Messrs. Colby, Foerste, Haley, and Manly were admitted to the degree of Ph.D. at this University; Mr. Osgood, to the degree of Ph.D. at Göttingen; Mr. Van Cleef, to the degree of Ph.D. at Bonn; and Mr. Love, to the degree of A.M. at this University. Messrs. Colby, Gates, Hume, Love, Mack, Osgood, Paul, and Van Cleef withdrew from their fellowships at the close of the academic year, and Messrs. Gates, Love, and Osgood received appointments as instructors at this University. Messrs. Foerste and Haley were transferred from Morgan to Parker fellowships, permitting study abroad; and Mr. Currier was transferred from the Harris to a Rogers fellowship, which has a larger income. The other persons (seven in number) named in the above list were reappointed; and the following new appointments were made for the year 1890–91: —

Harris Fellowship, Edward Everett Hale, Jr., A.B. 1883, now studying English Philology at Halle.

Kirkland " Frank Beverly Williams, A.B. 1888, A.M. 1890, now studying History at Berlin.

Morgan " Richard Edward Edes, A.B. (*Johns Hopkins Univ.*) 1889, now studying Physiology and Psychology at this University.

" " Dickinson Sargent Miller, formerly a student at the University of Pennsylvania and at Clark University, now studying Philosophy at this University.

" " Joseph Torrey, Jr., A.B. (*Bowdoin Coll.*) 1884, A.M. (*Ibid.*) 1887, now studying Chemistry at this University.

" " Lucien Marcus Underwood, Ph.B. (*Syracuse Univ.*) 1877, Ph.D. (*Ibid.*) 1879, Professor of Botany at Syracuse University, studying Botany at this University.

" " Henry Baldwin Ward, A.B. (*Williams Coll.*) 1885, studying Zoölogy at this University.

Henry Lee Memorial Fellowship, Thomas Elmer Will, A.B. 1890, studying Political Science at this University.

Ozias Goodwin Memorial Fellowship, Herman Vandenburgh Ames, A.B. (*Amherst Coll.*) 1888, A.M. (*Harvard Univ.*) 1890, studying Constitutional Law at this University.

Henry Bromfield Rogers Memorial Fellowship, William Edward Burghardt DuBois, A.B. (*Fisk Univ.*) 1888, A.B. (*Harvard Univ.*) 1890, studying Ethics in its relations to Sociology at this University.

The Harris, Rogers, Parker, John Thornton Kirkland, James Walker, and Robert Treat Paine Fellowships and the John Tyndall Scholarship regularly permit study in Europe; the Morgan Fellowships require study at this University; the three Memorial Fellowships may be assigned either to resident or to non-resident students.

Twenty students in the Graduate Department held Thayer, Townsend, and Shattuck Scholarships. In addition to these scholarships, the James Savage, Toppan, Charles Haven Goodwin, George and Martha Derby, and Gorham Thomas Scholarships, making thirty-three scholarships in all, have now been reserved for the enjoyment of graduate students.

The number of candidates applying at the prescribed time (the *last day of March*, 1890) for fellowships and scholarships, to be held in the Graduate School during the academic year 1890–91, was *one hundred and seven*. Of these, sixteen desired to pursue studies in Classical Philology; twelve, in other branches of Philology; eleven, in Philosophy; twenty-one, in History, Political Science, and Sociology; one, in Music; eleven, in Mathematics; five, in Physics; ten, in Chemistry; twelve, in Natural History; and two, in American Archaeology and Ethnology; while six made no statement as to their intended courses of study or proposed to pursue courses in different branches. Thirty-two were graduate students of this University; twenty-seven, members of the Senior class of Harvard College; one, a member of a professional school; eleven, former students of the University; and thirty-six had never been connected with the University. Thirty-seven had received the degree of A.B., S.B., A.M., Ph.D., or S.D. from this University, many of these having been previously graduated elsewhere; forty-three were graduates of other institutions, and not of this University; twenty were Seniors of Harvard College who had not been previously graduated elsewhere; and seven were undergraduate or non-graduate students at other universities. Eight were or had been professors, and six instructors of lower grade, in some other college or university; eight were or had been instructors or assistants here; and fifteen were or had been instructors in important schools.

Of the candidates thus enumerated, twenty received fellowships; twenty-seven received scholarships; six were appointed to instructorships or assistantships which permit their continuing their own studies in the Graduate School; eight are members of the Graduate School without holding appointments; and five entered the Senior class of Harvard College. Forty-one, having failed to receive appointments, are unconnected with the University; but some of these have

obtained positions at other institutions, through the influence of recommendations given here. A small number of applications for scholarships were made at dates subsequent to the last day of March; and six of these applications were successful.

Of the fifty-three persons appointed to fellowships or scholarships, eight are students of Classical Philology; nine, of other branches of Philology; four, of Philosophy; six, of History; six, of Political Science or Sociology; six, of Mathematics; two, of Physics; four, of Chemistry; seven, of Natural History; and one, of American Archaeology and Ethnology.

Most of the unsuccessful applicants were persons whom we should have gladly welcomed to the Graduate School; and there can be no doubt that we still need an increase in the number of fellowships and scholarships available for graduate students. It is worthy of consideration whether the time has not arrived for the foundation by the Corporation of a certain number of University scholarships, covering the tuition-fees of good applicants who cannot be otherwise provided for. The Catalogue for the current year contains the names of thirty-one members of the Senior class of Harvard College who are registered as already graduates of other institutions. A large proportion of these students should properly be classed in the Graduate School; but many of them have elected to enter the undergraduate department in order to avail themselves of Price Greenleaf Aid and of scholarships which can be given only to students of the College. This condition of affairs threatens to be a serious obstacle to the growth of the Graduate School; and it can be remedied only by new and ample foundations for the benefit of its students, or by removing entirely the lines which separate it from the College.

The changes made in the organization of the University, towards the close of the academic year 1889–90, have an important bearing on the Graduate Department; and will, in my judgment, conduce, in a high degree, to its prosperity, its usefulness, and its dignity. The Academic Council has been replaced by the University Council; and this body has the function of considering questions of policy for the whole University, and questions concerning more than one Faculty. The Graduate Department — now styled the Graduate School — is transferred from the charge of the Academic Council to that of the new Faculty of Arts and Sciences; which also embraces under its care the College and the Lawrence Scientific School; while the ordinary administration of the three departments thus associated is remitted to three separate Boards, each under the chairmanship of a Dean. The Graduate School thus assumes its proper place at the

head of the purely liberal intellectual life of the University, and of the general department of Arts and Sciences now constituted; is brought into its natural relations with the other branches of that department, without giving up its own higher spirit of study and discipline; and may be expected to gain visibly, in the course of a few years, from the improved position now accorded to it. With all the advance made in the course of recent years in the methods, scope, spirit, and standards of undergraduate study in Harvard College, that very progress has given rise to a deep sense of the need of a period of graduate work at the University for all who aspire to be themselves cultivators of any field of liberal learning, or to gain real command of the principles which animate the intellectual movement of our day. This need is strongly felt not only here, but throughout the country, by ambitious young men, desirous of devoting themselves to literature or pure science, to higher teaching, to journalism, to philosophy, or to sociology and political science; and large numbers of such young men have shown themselves eager to resort to the universities which will receive them and can meet their demands for instruction, libraries, museums, and laboratories. The opportunities offered to such students by this University have, till within a few years, been kept much in the background; although, in many directions, they have long been abundant, and to a certain extent well-recognized. The change now made means, as I understand it, that the University is at last prepared to put its Graduate School prominently forward, as the natural complement of the College and the Scientific School, for all students who are looking to a literary or purely scientific profession; as one of the foremost objects of its regard, enjoying a full share of the time and attention of its professors and its philosophical Faculty; and as presenting advantages for advanced study, worthy of the reputation which is conceded to its undergraduate school, and which it is one of our first duties not to lessen by exaggerated or premature pretensions. It makes an earnest claim for this Department on the attention of its own students and graduates; and it urgently invites the accession of able and well-qualified persons from every quarter.

JAMES MILLS PEIRCE, *Dean.*

6 JANUARY 1891.

THE DIVINITY SCHOOL.

To the President of the University:

Sir, — As Dean of the Divinity Faculty, I beg to present the following report for the academic year 1889–90: —

There were connected with the Divinity School thirty-five students, as follows: —

Resident Graduates	10
Senior Class	4
Middle Class	7
Junior Class	12
Special Students	2

There were one hundred and eighty-three elections, by students in other departments of the University, chiefly in the College, of courses which were originally peculiar to the Divinity School, but which may now be counted also for the degree of A.B. These were chiefly in connection with the courses on Practical Ethics (105) and on Church History (50).

Twelve of the students were graduates of Harvard College. Fourteen other colleges were represented. Among the Resident Graduates eight Theological Seminaries were represented, as follows: —

Canton	1
Boston	1
Meadville	1
Oberlin	1
Princeton	1
Tufts	1
Union	1
Yale	3

Although the number of students is still small, never but once in the history of the School has it been so large as during the last year. In the year 1869, on the occasion of the breaking up of a theological school which had been established in Boston, for the purpose of preparing for the ministry men who were destitute of much previous training, its students were admitted to the Harvard Divinity School without examination. By this influx the number of students was suddenly raised to thirty-six. Out of this number there were only five who had received a liberal education, though two had received the degree of LL.B. and one that of S.B. The number which is reported for last year has been reached by a process of natural growth, and all but one of the students had graduated either from

Instructors.	Subjects.	No. of hours per week.	Attendance.	
			Divinity Students.	College Students.
	Old Testament.			
Prof. Lyon	Hebrew I. — Davidson's Grammar. — Readings from Genesis and the Psalms	3	6	4
Prof. Toy	Hebrew II. — Driver's Hebrew Tenses. — Readings from the Old Testament, including the whole of Micah and Ecclesiastes, most of Ezekiel, with selections from other books	2	3	2
Prof. Lyon	Jewish Aramaic. — Kautzsch's Grammar. — Brown's Aramaic Method. — The Aramaic portions of Ezra and Daniel were read and a few pages from the Targums	2*	2	1
Prof. Lyon	The History of Israel, Political and Social. — Lectures and Theses	2	14	5
Prof. Toy	The History of pre-Christian Hebrew Literature. — Readings in various authors were assigned to students, on which they were examined. The critical examination of Hebrew Literature from the earliest times to the end of the exile was conducted by lectures. Two Theses and several Themes were required	2	17	
Prof. Toy	History of the Religion of Israel. — Tiele's "Outline of the History of Religion." — Kuenen's History of the Religion of Israel. — Lectures and Theses	2	12	3
	New Testament.			
Prof. Thayer	New Testament Times: — the political, social, moral, and religious condition of the World when Christ appeared	2*	12	
Prof. Thayer	Outline Lectures on Theological Encyclopaedia and Literature; the Characteristics of the New Testament Greek; the Septuagint; Textual Criticism; the Life of Christ. — Study of the Gospels. — Essays and Criticisms	2	6	

Prof. Thayer	New Testament Introduction: — the Origin, Contents, and History of the New Testament Writings, together with the Formation of the Canon	2†	12	
Prof. Thayer	Outline lectures on the Life of Paul; Study of the Epistles; Essays and Criticisms	2	3	
Prof. Thayer	Lectures on our English Bible and its recent Revision. — Lectures on topics in Biblical Theology. — Exposition of Difficult Texts. — Essays and Criticisms	2	5	
Prof. Lyon	Classical Aramaic (Syriac). — Grammars of Nöldeke and Hutchinson-Uhlemann. — Roediger's Chrestomathia Syriaca	2†	1	1
	Church History.			
Dr. Allen	The Era of the Reformation in Europe from the rise of Italian Humanism to the close of the Council of Trent, 1350–1563	2	3	50
	Comparative Religion.			
Prof. Everett	Studies in the Comparative History of Religions, particularly the Vedic Religion, the Hindu Philosophies, Buddhism, Mazdaism, and the Chinese Religions	2	18	6
	Theology.			
Prof. Peabody	The Philosophy of Religion. — An Introduction to the study of Theology	1	8	4
Prof. Everett	Systematic Theology begun: The Psychological basis of Religious Faith	2	20	
Prof. Everett	Systematic Theology continued: The Content of Christian Faith. An elaborate essay on some Theological suject is expected from each student taking this course	3	18	2

* During the first half-year. † During the second half-year.

Instructors.	Subjects.	No. of hours per week.	Attendance.	
			Divinity Students.	College Students.
	Ethics.			
Prof. Peabody	The Practical Ethics of Social Reform. — An examination of the problems of Charity, Temperance, Labor, Divorce, Prisons, the Indian question, etc. — Lectures, Essays, and the study of Institutions	2	7	105
	Homiletics and Pastoral Care.			
Prof. Peabody and Mr. Hale	The Structure and Analysis of Sermons	1	10	
Profs. Everett and Peabody	Each student writes six sermons during the year, three of which are preached before the two upper classes and criticised by students and Instructor; the rest are criticised privately, both as to composition and delivery, in preparation for the public preaching named below	1	12	
Prof. Peabody	Pastoral Care and the Conduct of Public Worship. — Lectures	1*	10	
	Elocution.			
Mr. Kirby	I. — Class work twice a week, supplemented by private instruction	4	11	
Mr. Kirby	II. — Similar to the above	4	9	
	General Exercises.			
	Preaching by students in the Chapel of the School, open to the public. Once a week. — Meetings for Debate. Once in two weeks. — Meetings for Religious Conference, conducted by students, alternating with the above. Once in two weeks. — Morning Prayers, conducted by professors and students.			

* During the second half-year.

a college or a theological seminary, or both; and the single exception, a Special Student, had received the degree of Ph.B.

In the year 1882–83 there was present in the School, for the first time, a graduate of another theological seminary, who came without any purpose of entering the Unitarian ministry. This was three years after the change by which the School reaffirmed the principle upon which it was founded, and began the attempt to make of itself something larger than a training place for the ministers of a single denomination. It had taken so long for the announcement of this purpose to produce any practical effect. Since then the number of such students has gradually increased, there having been ten the last year, and there being sixteen the present year. The standing of some of the men who thus come to us may be illustrated by the fact that of those connected with the School during the last year, one is now Professor of Philosophy and College Chaplain at the University of North Carolina, and another is an Assistant Professor at the Meadville Theological School, his chief work being instruction in Hebrew and in other studies relating to the Old Testament.

Finding a tendency of students, of the class referred to, to come to the School, the Faculty have for the few past years, with the consent of the Society for Promoting Theological Education, offered two resident Williams Fellowships for graduates of any theological school who should best fulfil the somewhat high requirements that were the conditions of holding them. Only one of these was assigned the last year. The holder of it, a recent graduate of the Theological Seminary at Princeton, came from, and returned to, work in connection with the Presbyterian church at the West.

While these students are encouraged to do independent work, they prefer, for the most part, to enter into the regular exercises of the School, studying in connection with the lectures ordinarily given.

While it must be regretted that the regular classes are not larger, the presence of these Graduate Students is pleasant as introducing an interesting element, and as showing a beginning of that kind of university work which it was hoped the School under its present system might accomplish.

The Junior Class of last year was larger than it has been for some time. It is to be hoped that this is the beginning of an improvement in this direction also.

During the last few years it has now and then happened that men unable to pass the examinations required for entering the Divinity School as Special Students have entered the College as Special Students, simply for the purpose of taking part in the exercises of the

School. This is obviously an evasion of our rules, but it is one that is not necessarily to be condemned. The Faculty, whether collectively or individually, have the power to exclude from any exercises students whose presence is undesirable. The School takes no responsibility for such men, their names not appearing in its catalogue; while the difficulties attending this method are such that none who are not thoroughly in earnest will be likely to avail themselves of it. Two such students were in attendance the last year.

The report in regard to the Library for the last year is as follows: —

	Vol.	Pam.
In the Library, Oct. 1, 1889	21,528	3,197
Added between Oct. 1, 1889, and Sept. 30, 1890	506	1,852
	22,034	4,849
Less duplicates sold between Oct. 1, 1889, and Sept. 30, 1890	453	997
	21,581	3,852
Less change caused by binding	5	. .
In the Library, Oct. 1, 1890	21,576	3,852

Of the accessions 192 volumes and 1 pamphlet were purchased. The most important gift of the year was that of 47 volumes by the bequest of Rev. William Silsbee. This was increased by the gift of 22 volumes made by his widow from his library. Books and pamphlets (of the latter 1383) were given by Mrs. Henry W. Foote from the library of her late husband. Similar gifts from the library of Dr. Hedge were made by his children. 30 volumes and 43 pamphlets were received from the American Unitarian Association, through which gift we have all of the publications of this Association which are now in print.

The important work of cataloguing the Library has been diligently carried on during the year. The object of the catalogue is not merely to enable a person to obtain books, the titles and authors of which he knows, but also to make it possible for any one wishing to consult the Library in regard to any topic to learn what is the help which the Library can give him. Books are thus catalogued, not only as to title and author; there is also given, so far as important books and subjects are concerned, some analysis of their contents. To take an obvious example, one studying in regard to the authorship of the fourth Gospel might perhaps have no idea that in Ezra Abbot's "Critical Essays" is contained one of the most important discussions of this subject. In the new catalogue, under the appropriate heading, reference will be made to this and to other discussions that are

worth consulting. This analysis obviously requires to be made very carefully and with great judgment. It requires, also, learning both general and special. We are fortunate in having to conduct this work a librarian so well fitted for it as Robert S. Morison, A.M., D.B., a graduate of the School. This work involves an expenditure which the School is hardly able to bear, but the need is so pressing that the work cannot be deferred. From the nature of the case the process is a slow one, especially as those engaged in it have other duties in connection with the Library. During the year 3180 volumes were catalogued.

The greater part of the use of the Library is that of the reserved books in the reference room; of this no statistics can be given. From October 1st, 1889, to June 30th, 1890, there were taken from the stack 758 volumes, and from the reserved books, for use over night, 665 volumes. There was a tolerably steady increase, month by month, in the number of books borrowed from the stack. The number of such books in October this year was more than a third larger than that in October, 1889.

In my last report reference was made to the value of objects illustrating Biblical subjects. Since that time a gift of money has been announced from Mr. Jacob H. Schiff to the University for the beginning of a Semitic museum. While this museum will have no organic connection with the School, its resources will always be at the service of Divinity Students, and cannot fail to increase interest among us in the study of the Bible. The School may congratulate itself on having within easy reach collections so intimately connected with Biblical peoples and history.

In the absence of Professor Emerton the courses in Church History were, for the most part, omitted. The School was, however, fortunate in obtaining the services of Professor A. V. G. Allen, D.D., of the Cambridge Episcopal School, who gave one course of lectures in this department.

The opening lecture of the year, which is given to the whole School, was this year delivered by Professor Lyon on Old Testament Study in Theological Education. It was largely attended by students and others not connected with the School, as well as by our own Faculty and students.

Gatherings such as have been called "Seminaries," but are now more generally styled "Conferences," were held fortnightly in connection with the departments of the Old and the New Testaments and of Theology.

An interesting course of lectures, similar to those that have before been given in Divinity Chapel, by officers of the University not teach-

ers of the School, was the last year delivered on Certain Aspects of the History of Religion, as follows: —

Archaeological Evidence of Ancient Religious Rites in the Ohio Valley: FREDERICK WARD PUTNAM, A.M., Curator of the Peabody Museum, and Peabody Professor of Archaeology and Ethnology.

The Roman Worship of Mars, Jupiter, and Juno in the Earliest Times: FREDERICK DE FOREST ALLEN, Ph.D., Professor of Classical Philology.

The Every-day Religion of the Greeks: JOHN HENRY WRIGHT, A.M., Professor of Greek.

The Religion of the Upanishads: CHARLES ROCKWELL LANMAN, Ph.D., Professor of Sanskrit.

The Ancient Scandinavian Belief in a Future Life: GEORGE LYMAN KITTREDGE, A.B., Instructor in English.

The Elements of Power in the Preaching of Christ: LYMAN ABBOTT, D.D., Preacher to the University.

A table is added presenting the courses of instruction given the last year, and the attendance.

C. C. EVERETT, *Dean.*

THE LAW SCHOOL.

TO THE PRESIDENT OF THE UNIVERSITY:

SIR, — I beg to submit the following report upon the Law School for the academic year 1889–90: —

The table on p. 127 gives the courses of study and instruction during the year, the names of the instructors, the text-books used, the number of exercises per week in each course, and the number of students who offered themselves for examination in each course at the end of the year.

Instructors.	Studies and Text-books.	Exercises per week.	No. of students examined.
	FIRST YEAR.		
Prof. Keener	Contracts. Langdell's Cases on Contracts	3	105
Prof. Gray	Property. Gray's Cases on Property, vol. 1, 2	2	92
Mr. Schofield	Torts. Ames's Cases on Torts	2	97
Prof. Ames	Civil Procedure at Common Law. Ames's Cases on Pleading	1	104
Mr. Chaplin	Criminal Law and Procedure. No text-book	1	104
	SECOND YEAR.		
Prof. Ames	Bills of Exchange and Promissory Notes. Ames's Cases on Bills and Notes	2	43
Prof. Keener	Contracts. Keener's Cases on Quasi-Contracts	2	62
Prof. Thayer	Evidence. No text-book	2	44
Prof. Langdell	Jurisdiction and Procedure in Equity. Langdell's Cases in Equity Pleading	2	20
Prof. Gray	Property. Gray's Cases on Property, vol. 3, 4	2	63
Prof. Thayer	Sales of Personal Property. Langdell's Cases on Sales	2	29
Prof. Ames	Trusts. Ames's Cases on Trusts	2	64
	THIRD YEAR.		
Prof. Keener	Agency. No text-book	2	59
Prof. Thayer	Constitutional Law. No text-book	2	29
Prof. Langdell	Jurisdiction and Procedure in Equity. No text-book	2	32
Prof. Ames	Partnership and Corporations. Ames's Cases on Partnership	2	56
Prof. Langdell	Suretyship and Mortgage. No text-book	2	27
Prof. Gray	U. S. Practice. No text-book	1	13
Prof. Gray	Law of Persons. No text-book	1	14
Prof. Ames	Bills of Exchange and Promissory Notes. Ames's Cases on Bills and Notes	2	29
Prof. Keener	Contracts. Keener's Cases on Quasi-Contracts	2	2
Prof. Thayer	Evidence. No text-book	2	3
Prof. Langdell	Jurisdiction and Procedure in Equity. Langdell's Cases in Equity Pleading	2	2
Prof. Gray	Property. Gray's Cases on Property, vol. 3, 4	2	1
Prof. Thayer	Sales of Personal Property. Langdell's Cases on Sales	2	13
Prof. Ames	Trusts. Ames's Cases on Trusts	2	2

The following table exhibits the attendance at the School during the last twenty years: —

Year.	Whole no. of students.	No. present during the whole year.	No. present only part of the year.	Average number.
1870–71	165	107	58	136
1871–72	138	107	31	123
1872–73	117	109	8	113
1873–74	141	121	20	131
1874–75	144	130	14	137
1875–76	173	153	20	163
1876–77	199	168	31	184
1877–78	196	172	24	183
1878–79	169	137	32	154
1879–80	177	138	39	157
1880–81	161	136	25	149
1881–82	161	139	22	146
1882–83	138	120	18	129
1883–84	150	130	20	140
1884–85	156	139	17	148
1885–86	158	142	16	151
1886–87	188	160	28	174
1887–88	225	197	28	211
1888–89	225	198	27	212
1889–90	262	229	33	245

The following table exhibits the School as divided into classes since the establishment of the three-years' course and the examination for admission: —

Year.	1877–78.	1878–79.	1879–80.	1880–81.	1881–82.	1882–83.	1883–84.	1884–85.	1885–86.	1886–87.	1887–88.	1888–89.	1889–90.
First	72	63	78	57	61	59	58	75	55	75	89	74	90
Second . . .	79	50	32	58	41	38	40	37	46	47	55	66	59
Third	.	.	21	14	25	20	22	17	17	24	33	27	52
Sp. Students.	31	47	46	32	34	21	30	28	40	42	46	58	62

In regard to the last table, it is to be observed that, although the three-years' course went into operation at the beginning of 1877–78, there was no third-year class until 1879–80. It is also to be observed that the second-year class of 1877–78 did not take the three-years' course, but was graduated at the end of the second year, that class having entered the School before the three-years' course went into operation.

The following table exhibits the results of the examinations for admission in each year since they were established: —

	1877–78.	1878–79.	1879–80.	1880–81.	1881–82.	1882–83.	1883–84.	1884–85.	1885–86.	1886–87.	1887–88.	1888–89.	1889–90.
Offered . . .	16	15	18	25	19	12	12	17	17	14	33	15	20
Admitted . .	7	7	12	13	16	10	5	11	7	6	17	11	10

The following table exhibits the results of the examinations for a degree in each year since the establishment of the three-years' course: —

Year.	First year.			Second year.			Third year.		
	Offered.	Passed.	Failed.	Offered.	Passed.	Failed.	Offered.	Passed.	Failed.
1877–78	66	51	15	66	47	19	.	.	.
1878–79	50	42	8	40	39	1	.	.	.
1879–80	73	69	4	28	26	2	22	18	4
1880–81	45	43	2	49	46	3	18	18	0
1881–82	49	44	5	38	37	1	36	33	3
1882–83	46	44	2	36	34	2	21	19	2
1883–84	51	41	10	35	31	4	26	25	1
1884–85	61	56	5	30	29	1	23	19	4
1885–86	54	48	6	41	38	3	18	18	0
1886–87	66	59	7	40	38	2	26	26	0
1887–88	80	70	10	43	34	9	33	32	1
1888–89	72	66	6	58	55	3	30	29	1
1889–90	86	75	11	52	49	3	51	47	4

In regard to the foregoing table it is to be observed that it includes no Special Students, and hence that all the applicants included in it were either graduates of colleges or had passed the examination for admission. Of course this remark does not apply to the second-year class of 1877–78, and this accounts in part for the much greater number of failures in that class.

The following table exhibits the number of students who have received the honor degree in each year since it was established: —

1879–80.	1880–81.	1881–82.	1882–83.	1883–84.	1884–85.
7	8	10	10	5	5
1885–86.	**1886–87.**	**1887–88.**	**1888–89.**	**1889–90.**	
7	9	9	12	14	

The following table exhibits the number of students who, since the establishment of the three-years' course, have been examined for a

degree in the studies of any year without having been members of the School during that year: —

Year.	First year.			Second year.			Third year.		
	Offered.	Passed.	Failed.	Offered.	Passed.	Failed.	Offered.	Passed.	Failed.
1877–78	5	2	3	.	.	.	.	.	.
1878–79	3	2	1	.	.	.	.	.	.
1879–80	6	4	2	1	1	0	5	4	1
1880–81	6	4	2	.	.	.	4	4	0
1881–82	2	1	1	.	.	.	10	8	2
1882–83	3	3	0	.	.	.	3	2	1
1883–84	7	6	1	.	.	.	3	3	0
1884–85	3	2	1	.	.	.	6	4	2
1885–86	4	3	1	.	.	.	2	2	0
1886–87	3	3	0	.	.	.	4	4	0
1887–88	5	3	2	1	0	1	2	2	0
1888–89	12	8	4	.	.	.	3	3	0
1889–90	7	6	1	.	.	.	.	.	.

The following table exhibits the number of students who have entered the School in each year during the last twenty years, and shows how many of them were graduates of colleges; and of the latter, how many were graduates of Harvard and how many of other colleges: —

Year.	Whole number of entries.	Graduates of colleges.	Harvard graduates.	Graduates of other colleges.	Non-graduates.
1870–71	105	60	19	41	45
1871–72	92	56	26	30	36
1872–73	87	47	22	25	40
1873–74	95	58	29	29	37
1874–75	102	55	40	15	47
1875–76	119	67	39	28	52
1876–77	128	77	47	30	51
1877–78	111	79	47	32	32
1878–79	102	62	38	24	40
1879–80	124	76	59	17	48
1880–81	91	60	41	19	31
1881–82	97	53	29	24	44
1882–83	84	56	33	23	28
1883–84	86	61	47	14	25
1884–85	101	79	56	23	22
1885–86	88	60	35	25	28
1886–87	113	80	46	34	33
1887–88	134	82	52	30	52
1888–89	111	77	50	27	34
1889–90	153	102	66	35	52

The following table exhibits the average age at which students have entered the School in each year since 1873–74, that being the first year in which a record of ages was kept; also the age at which Harvard graduates, graduates of other colleges, and non-graduates respectively, have entered the School in each year since 1873–74; also the average age at which students have entered the School during the whole period since 1873–74; also the average age at which Harvard graduates, graduates of other colleges, and non-graduates respectively, have entered the School during the whole period since 1873–74: —

Year.	Of whole number of entries.	Of Harvard graduates.	Of graduates of other colleges.	Of non-graduates.
1873–74	23.34	23.58	23.76	22.83
1874–75	22.71	23.66	22.78	21.88
1875–76	22.98	22.35	23.28	23.28
1876–77	22.33	22.83	22.49	21.76
1877–78	23.34	23.25	23.83	22.97
1878–79	22.56	23.14	22.88	21.81
1879–80	23.20	23.46	22.77	23.02
1880–81	22.36	22.66	23.11	21.50
1881–82	22.68	23.06	23.73	21.85
1882–83	22.73	22.94	23.12	22.13
1883–84	22.64	23.17	22.86	21.53
1884–85	22.68	23.33	22.10	21.65
1885–86	22.73	23.21	22.84	22.03
1886–87	22.90	23.31	24.00	21.50
1887–88	22.86	23.33	23.42	22.07
1888–89	23.07	23.26	23.84	22.23
1889–90	22.91	23.19	22.83	22.42
1873–74 to 1889–90	22.84	23.19	23.21	22.18

It is now just twenty years since a series of important changes was begun in the character and methods of the School; and these changes have had so great an effect upon the fortunes of the School that they have rendered the year 1870–71 memorable as the beginning of a new order of things.

To trace in detail all the changes of the last twenty years and indicate the reasons for making them, would occupy too much space, and would perhaps be tedious. A few points of comparison between 1869–70 and 1889–90 are all that there is room for, and perhaps all that is appropriate. Suffice it, therefore, to say that in 1869–70 there were no examinations either for admission to the School or for a degree; and those who received the degree of Bachelor of Laws at the close of that year were required to show only that they had paid

the tuition-fees for a year and a half, or for a year, if they had been admitted to practice before coming to the School, or if they had spent not less than half a year in some other law school. On the other hand, all those who received the degree at the close of the year 1889–90 had passed three successive annual examinations, each upon a full year's work, thus making three years' work in all. All of them had also been in the School two full years, and all but four of them had been in the School three full years. Moreover, all of them who were not graduates of colleges had passed an examination for admission, either in Latin or French, and also in Blackstone's Commentaries.

In 1869–70 the teaching force of the School consisted of three professors. Now it consists of five full professors, one assistant professor, and three lecturers. In 1869–70 there was no division of the School into classes for purposes of instruction; but the same instruction was given to all, and all constituted but one class. Now, the School is divided into three classes, each with its appropriate and separate instruction. Prior to 1870–71 no subject was taught more than once in two years. Now, every subject is taught every year.

In 1869–70 the amount of instruction given was 10 hours per week (sufficient only for a single class). In 1889–90 the amount of instruction was 35½ hours per week, and the amount now given is 40 hours per week.

In 1869–70 the total number of students in the School was 156, of whom 99 were in the School only a part of the year. In 1889–90 the total number of students in the School was 262, of whom all but 33 were in the School during the entire year. In 1869–70 the average number of students in the School during the year was 105, while in 1889–90 it was 245. In 1869–70 the number of students whose names appeared in the annual College catalogue was 120, while in 1889–90 it was 254, and in the current year it is 279. In 1869–70 the number of students who entered the School was 115, of whom 25 were Harvard graduates, 30 were graduates of other colleges, and 60 were non-graduates. In 1889–90 the number of students who entered the School was 153, of whom 66 were Harvard graduates, 35 were graduates of other colleges, and 52 were non-graduates, while, in the current year, the number of students who have already entered the School is 152, of whom 58 are Harvard graduates, 42 are graduates of other colleges, and 52 are non-graduates.

Prior to 1870–71 the student was expected to acquire his knowledge of law by studying certain prescribed text-books or treatises, and the instruction given consisted of lectures upon these same text-books, — a mode of study and instruction which has become in this School a forgotten piece of antiquity. Now, the student makes his own text-

book, and the subjects as well of study as of instruction are those original materials of the law which constitute the stock-in-trade alike of the judge, the practicing lawyer, the writer, and the teacher.

In 1869–70 the library was so nearly a wreck that it required to be reconstructed almost from its foundations. Now, it is believed to be larger (referring only to law-books proper, and excluding statutes), more complete, and in a better condition than any other law library in the United States, with the possible exception of the national library at Washington. Its duplicates, triplicates, and quadruplicates of English and American reports alone number 3040 volumes. From the beginning of 1870–71 to the close of 1889–90, 14,421 volumes were added to the library at an expense of $48,399.32. During the same period $10,423.37 were expended upon the binding and repairing of books. Prior to 1870–71 the only persons employed to care for the library were a student-librarian and the janitor of Dane Hall. From the opening of the library in the morning until the closing of it at night it was subject to no supervision or control whatever. All persons who chose resorted to it, used it as they pleased, and behaved in it as they pleased; and thus disorderly conduct, spoliation, and theft were constantly occurring. Now, a permanent librarian, a permanent assistant librarian (both of whom have held their present positions for the last eighteen years), and three assistants are constantly employed in the care and administration of the library and in other administrative duties.

Prior to 1870–71, and subsequently to the time of Professor Greenleaf, no one connected with the School took much interest in the subject of purchasing books for the library. The practice was for the booksellers with whom the School kept an account to send to the library a copy of every new book received by them; and, as to each book so sent, one of the Professors decided whether it should be kept or not. As to the purchase of other than new books, there was no system whatever; and such books were seldom purchased unless for some special reason; and when it was decided to purchase any such books an order for them was given to a bookseller. Under this practice the library seldom received any accessions of old books; and, even had this been otherwise, it would almost inevitably have happened that most of the accessions received would represent some person's hobby, and so would improve the library only in some one direction. Moreover, old books purchased in such a way are sure to cost two or three times as much as they need cost. There are thousands of law-books without which no library is perfect, and which yet have no fixed market-value, and which may be said to be more or less rare in the sense of being more or less difficult to find, but very

few of which are rare in the sense of commanding a high price in the market. The only way, therefore, to purchase such books to advantage is to seek opportunities of purchasing them at a low price, and to purchase them, as a rule, only when such opportunities offer. It was therefore decided, about seventeen years ago, that the librarian should make it a part of his duty to follow up auction sales of law-books in all the principal cities of the United States. Accordingly, on the 22d day of January, 1874, he attended an auction sale for the first time and purchased 36 volumes. Prior to that occasion it is not known that a single volume was ever purchased for the library at auction. Since that date the librarian has received catalogues of 384 auction sales of law-books and miscellaneous books, at 160 of which sales he has made purchases. All the catalogues thus received have been examined more or less, and those of the 160 sales at which purchases have been made, comprising in the aggregate 95,121 lots of books (using the term "lot" as it is used in auctioneers' catalogues), have been subjected to a critical examination; and this has involved not only an infinite amount of bibliographical investigation, but also at every step a perfect knowledge of what the library already contained. Moreover, of the 160 sales just referred to, the librarian has actually attended 55, the catalogues of which comprised 40,947 lots, and at nearly all of them marked the price at which every lot was sold; and in every case in which he attended a sale he spent before the sale twice as much time as was occupied by the sale in making a critical and laborious examination of the books in respect to their condition. At such of the 160 sales as he did not attend personally he made his purchases by means of orders sent to the auctioneer. What has been the material result to the library of all this expenditure of time and labor? So far as it can be stated in figures, the result has been the purchase of 3624 volumes at a cost of $4250.65, i. e., at an average cost of a little more than a dollar a volume. Of course many of the books thus purchased were low-priced books, but many of them also were very high-priced books, and many of them were books which could not and cannot be purchased in the market at any price.

Prior to 1870–71 there was never, so far as is known, any collation made of books purchased for the library for the purpose of ascertaining whether or not they were perfect. Indeed, the practice of collating books was not begun until January, 1874; but since that date every book purchased for the library, whether new or old, and whether purchased at private or public sale, has been collated, page by page, before being accepted. Soon afterwards the work was begun of collating, page by page, all the books that were in the library prior to the date just mentioned; and this work has since been

prosecuted with as much rapidity as possible; and no money has ever been spent in rebinding or otherwise repairing a book until it was first collated. Up to this date, not much less than 20,000 of the 25,000 volumes and upwards which the library now contains have been collated in the manner before stated. Of course all defects discovered have been carefully noted, and a list has been kept of all defective volumes, and in numberless cases such defects have been supplied by purchases made at auction or otherwise, and always at a trifling expense.

In a library that is so incessantly used as ours is, the subject of binding and repairing books is scarcely second in importance to that of the purchase of books; and it is a subject as to which it is much more difficult to maintain a high standard. Moreover, the difficulties which are inherent in the subject are with us much enhanced by the very low condition of the art of law-binding in this country.

Prior to 1870–71 the library was as little cared for in respect to the binding and repairing of the books as in other respects. Binders were employed with little regard to their ability to do good work, and little pains were taken either to give them proper directions or to see that they did their work in accordance with such directions as were given them, or that they did it properly; and the results were deplorable. In no case was the work what would now be regarded as good; in many cases it was shocking in respect both to the work done and the materials employed; and in many other cases books were actually ruined by the binder.

Since 1870–71 the most strenuous efforts have been made to improve the administration of the library in respect to the binding and repairing of books; and, though the success of these efforts has not been all that could be desired, yet it has upon the whole been gratifying; for the library may now safely challenge comparison in respect to its condition with any other law library in the United States. What has been done, however, has been at a heavy cost to the librarian. He has been obliged to create a standard of his own and educate his binder up to it; and it is only by the exercise of unceasing vigilance, combined with much technical knowledge, that he has succeeded in maintaining so high a standard as he has maintained.

Prior to 1870–71 the School manifested little interest in its old students and nothing was known of them except by accident. In 1889–90 the School issued a quinquennial catalogue which, in completeness and accuracy, may challenge comparison with any similar work ever published. Prior to 1870–71 the old students of the School had no organization among themselves, and therefore as a body ex-

erted no influence in favor of the School; and few of them individually manifested much interest in the School. Now (and since 1886), the old students are formed into an Association, which has a membership of more than 1600, is represented in forty-three States and Territories by one or more local officers, and is most actively devoted to the interests of the School.

Finally, in 1869–70 the tuition-fees of the School amounted to $11,525, and at the end of the year the Treasurer's accounts showed a surplus of $1212.60, while in 1889–90 the tuition-fees amounted to $36,465, and at the end of the year the Treasurer's accounts showed a surplus of $12,193.93.

C. C. LANGDELL, *Dean.*

DECEMBER 12, 1890.

THE MEDICAL SCHOOL.

TO THE PRESIDENT OF THE UNIVERSITY:

SIR, — As Dean of the Medical Faculty I have the honor to submit the following report upon the Medical School for the academic year 1889–90: —

The only important change in the character of the instruction given is the arrangement by which second-year students receive surgical instruction in small sections, each section serving four to six weeks as dressers in the out-patient departments of the Massachusetts General Hospital. The whole class thus acquires a practical familiarity with surgical work which has heretofore been attainable only by a few favored individuals.

The courses for graduates and the summer courses of instruction, the establishment of which was alluded to in the last report, have attracted a large number of students and bid fair to become important features in the work of the School.

The construction of the Sears Laboratory of Pathology and Bacteriology has been carried on during the past year, and, notwithstanding many vexatious delays occasioned by strikes among the laborers, the building is now nearly ready for occupation.

The Faculty, fully aware of the importance of securing increased facilities for clinical instruction, has devoted much time to the consideration of the best method of bringing about this result, but no definite plan has, as yet, been adopted. A hospital under the control of the Faculty would, of course, afford the best solution of the problem, and no worthier object can be suggested to friends of medical education than the establishment and endowment of such an institution.

Among the other immediate needs of the School may be mentioned: —

(1) The endowment of the department of Bacteriology in order to enable the head of that department to devote his whole time to the work of instruction and research, and to secure the assistance without which research is very slow and laborious.

(2) The provision of a more complete equipment of microscopes and apparatus for the department of Histology and Embryology. At present a considerable number of students are excluded from the laboratory course in Microscopy for the want of the necessary accommodations. In view of the great and increasing importance of the microscope in medicine, it is desirable that all the students of the School should be trained in its use.

In addition to the regular instruction given in the School, the amount and character of which is fully set forth in the tables appended to this report, much special work has been done in various departments, chiefly in the direction of original research.

Anatomy. — By studies in the dissecting room and the collection of osteological specimens material has been secured for the investigation of the relations between the shape of the bones and the figure of the individual.

The Professor of Anatomy has published observations on one hundred skulls, showing the relation of the cranial sutures to the age of the individual, and also a second series of observations on the breast bone as an index of age, sex, and height.

Histology and Embryology. — Assistant Professor Charles S. Minot has been engaged upon the preparation of his work on Human Embryology, and in connection with his studies for it has prepared the following two articles, which are now in press: —

(1) On certain phenomena of growing old. Address delivered as Vice-President before the American Association for the Advancement of Science, at Indianapolis, 1890.

(2) On the fate of the human decidua reflexa (to appear in the Anatomischen Anzeiger).

Dr. Minot has also published the following papers representing the results of laboratory work: —

Die Placenta des Kaninchens. Biol. Centralbl. x. 114–122. 1890.

Evolution of the Medullary Canal. Am. Nat. xxiii. 1019–1021. 1890.

Concrescence Theory of the Vertebrate Embryo. Am. Nat. xxiv. 501–516; 617–629. 1890.

The Mesoderm and the Coelom of Vertebrates. Am. Nat. xxiv. 877–898. 1890.

Zur Morphologie der Blutkörperchen. Anat. Anz. v. no. 21, 601–604. 1890.

TABLE I. — SHOWING THE AMOUNT AND CHARACTER OF INSTRUCTION.

COURSES OF INSTRUCTION FOR 1889-90.

Instructors.	Subjects.	Exercises per week.	No. of students examined.
	FIRST CLASS.		
Prof. Dwight	Descriptive Anatomy	Three.	99
Asst. Prof. M. H. Richardson	Practical and Applied Anatomy	Three, November till May.	
Drs. Mixter, Conant, & Munro	Practical Anatomy, Recitations, and Exercises in Dissection	Six, November till May.	
Asst. Prof. C. S. Minot and Dr. Quincy	Laboratory Exercises in Histology	Two, till May.	
Asst. Prof. C. S. Minot	Embryology	Eight Lectures.	
Dr. J. W. Warren	Systematic and Experimental Physiology	Four.	86
Dr. J. W. Warren	Laboratory Exercises in Experimental Physiology	November till May.	
Prof. Wood	Medical Chemistry	Two, second half-year.	
Prof. Hills	General and Analytical Chemistry	Two, with ten additional Exercises	76
Prof. Hills, Drs. Harrington and Worcester	Practical Exercises in the Laboratory for General Chemistry	Five.	
Dr. Harrington	Hygiene	Twelve Lectures and twelve Demonstrations.	
Dr. Harrington	Materia Medica with Practical Demonstrations	Two, second half-year.	87
	SECOND CLASS.		
Prof. Dwight	Topographical and Advanced Anatomy	One.	100
Asst. Prof. M. H. Richardson	Practical and Applied Anatomy	Three, November till May.	
Drs. Mixter, Conant, & Munro	Practical Anatomy, with Exercises in Dissection	Five, till May.	
Prof. Wood	Medical and Toxicological Chemistry	Two, first half-year.	80
Prof. Wood and Dr. Emerson	Practical Exercises in Laboratory for Medical Chemistry	Five.	
Prof. Fitz	General Pathology and Pathological Anatomy	Two.	109
Prof. Fitz	Special Pathological Anatomy, with Demonstrations	Two.	

	SECOND CLASS. — (CONTINUED.)		
Drs. Whitney and Gannett	Laboratory Exercises in Pathological Histology	Two.	
Prof. Fitz and Dr. Gannett	Practical Instruction in Performing Autopsies	Throughout the year.	
Profs. Shattuck and Mason, & Drs. Garland & Vickery	Clinical Medicine, including one weekly conference	Seven.	
Drs. Garland, Gannett, and Withington	Practical Instruction in Auscultation and Percussion	Six, first half-year.	
Dr. Cutler	Recitations in Theory and Practice	Two.	
Prof. Knight	Laryngoscopy	Six, first half-year.	
Dr. Burrell	The Application of Bandages and Apparatus	Six, October till January.	
Profs. Cheever and Warren	Clinical Surgery	Two.	
Prof. Porter	Clinical Surgery	Three.	
Asst. Prof. F. H. Williams	Therapeutics	Three.	104
Asst. Prof. Rotch	Paediatrics	Two, for two months.	
	THIRD CLASS.		
Prof. W. L. Richardson	Theory and Practice of Obstetrics	Two.	97
Dr. C. M. Green	Recitations in the Theory and Practice of Obstetrics	One.	
Dr. C. M. Green	Operative Obstetrics	Twelve practical Exercises.	
Drs. C. M. Green, Reynolds, and Townsend	Practical Instruction in Clinical Obstetrics	Throughout the year.	
Prof. Minot	Theory and Practice of Physic	Two.	91
Profs. Shattuck and Mason, & Drs. Garland & Vickery	Clinical Medicine, including one weekly conference	Seven.	89
Prof. Cheever	Surgery	One, October till January; Two, January till June.	86
Prof. Warren	Surgical Pathology	Two, October till January.	
Prof. Cheever	Clinical Surgery	Two.	
Prof. Warren	Clinical Surgery	Three.	

COURSES OF INSTRUCTION FOR 1889–90. — (CONTINUED.)

	THIRD CLASS. — (CONTINUED.)		
Prof. Porter	Clinical Surgery	Four.	72
Prof. Porter	Surgical Anatomy and Operative Surgery	Twice a week in March and April.	
Prof. Porter, Asst. Prof. M. H. Richardson, and Drs. Mixter, Conant, Munro, and Monks	Operative Surgery	Fifteen practical Exercises.	
Prof. Williams	Diseases of the Eye	Two, first half-year.	1
Prof. Williams	Clinical Ophthalmology	One, till January and after March.	
Prof. White	Diseases of the Skin	One.	
Prof. White	Clinical Dermatology	One.	
Prof. Baker	Gynaecology	One.	4
Prof. Baker	Clinical Gynaecology	Two, first half-year.	
Dr. Davenport	Clinical Gynaecology	Two, second half-year.	
Dr. Post	Practical Diagnosis and Treatment of Syphilis	One.	
Profs. Blake and J. O. Green	Practical Diagnosis and Treatment of Diseases of the Ear	One, January till April.	2
Prof. Blake	Anatomy, Physiology, and Diseases of the Ear	Two, for two months.	
Asst. Prof. Rotch	Practical Diagnosis and Treatment of Diseases of Children	Two.	77
Dr. Putnam	Practical Diagnosis and Treatment of Diseases of the Nervous System	One.	
Dr. Fisher	Mental Diseases	Two, second half-year.	
Asst. Prof. Draper	Legal Medicine, with Demonstrations	Two, first half-year.	1

	FOURTH CLASS.		
Prof. Fitz	Clinical Medicine	One, for one month.	
Dr. Garland	Clinical Medicine	One, for six months.	
Dr. Gannett	Clinical Medicine.	One, for seven months.	
Dr. Vickery	Clinical Medicine.	One, for three months.	
Prof. Porter	Clinical Surgery	One, for four months.	
Prof. Warren	Clinical Surgery	One, for two months.	
Drs. Gay and Watson	Clinical Surgery	Two, for two months.	
Dr. Burrell	Clinical Surgery	Two, for three months.	
Prof. Porter and Dr. Monks	Operative Surgery	Practical Exercises.	8
Dr. Bradford	Orthopedic Surgery	Two, for two months.	
Prof. W. L. Richardson	Clinical Obstetrics	Two, for five months.	12
	Operative Obstetrics	Practical Exercises.	17
Prof. Williams	Clinical Ophthalmoscopy	Two, for three months.	5
Dr. Wadsworth	Ophthalmoscopy	Two, for four months.	
Prof. White	Dermatology	Two.	5
Dr. Tilden	Clinical Dermatology	Two, for three months.	5
Asst. Prof. Baker and Drs. Davenport and Strong	Clinical Gynaecology	Two.	13
	Operative Gynaecology	Ten exercises.	
Dr. Doe	Clinical Gynaecology	One, for four months.	
Asst. Prof. Rotch	Diseases of Children	Two, for three months.	17
Drs. Walton and Knapp	Diseases of the Nervous System	One, for four months.	
Dr. Fisher	Mental Diseases	Two, for four months.	1
Dr. Cowles	Mental Diseases	One, for three months.	
Prof. Knight	Laryngology	Three, for three months.	1
Profs. Blake and J. O. Green	Otology	Three, for four months.	1
Asst. Prof. Draper	Legal Medicine	Two, first half-year.	1
Dr. Harris	Legal Medicine	Demonstrations.	

COURSES OF INSTRUCTION FOR 1889-90. — (CONTINUED.)

	FOURTH CLASS. CONTINUED.		
Dr. Greenough	Syphilis	Two, for four months.	
Dr. Homans	Ovarian Tumors	Six Lect.; Clin. Exer.	
Dr. Durgin	Hygiene	Sixteen Lectures.	1
Drs. Cabot, Watson, and Tilden	Genito-urinary Surgery	One, for three months.	
Dr. Ernst	Bacteriology	One, for three months.	1
Boston Cooking School	Cookery		

TABLE II. — SHOWING NUMBER OF TERMS SPENT AT THE SCHOOL BY GRADUATES.

	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.
Spent six terms .	49 81%	79 91%	67 88%	57 96%	63 89%	72 91%	83 85%	77 88%	51 93%	58 88%
Spent five terms .	6 10%	2 2%	4 5%	0	3 4%	3 4%	4 4%	4 4%	2 3%	2 3%
Spent four terms .	4 6%	4 4%	4 5%	2 3%	4 5%	4 5%	1 1%	3 3%	2 3%	6 9%
Spent three terms .	1 1%	0	1 1%	0	0	0	0	0	0	0
Spent two terms .	0	1 1%	0	0	1 1%	0	1 1%	3 3%	1 1%	0
Total graduated .	60	86[1]	76[2]	59[3]	73[4]	79[5]	98[6]	87[7]	56[8]	66[9]

[1] Includes nine students of the fourth class.
[2] Includes six students of the fourth class.
[3] Includes nine students of the fourth class.
[4] Includes three students of the fourth class.
[5] Includes nine students of the fourth class.
[6] Includes eleven students of the fourth class.
[7] Includes eleven students of the fourth class.
[8] Includes seven students of the fourth class.
[9] Includes thirteen students of the fourth class.

TABLE III. — STATISTICS OF EXAMINATIONS.

EXAMINATIONS FOR ADMISSION.

			Physics.	Latin.	English.	Elective.	Rejected.
1890.	June	Offered . .	47	53	52	47	4
		Conditioned	9	13	19	5	
	Sept.	Offered . .	28	26	30	30	2
		Conditioned	7	4	1	9	

Chemistry. — The Professor of Chemistry has been engaged in investigating the elimination of arsenic in cases of chronic poisoning by arsenic, and also in studying the use of various menstrua for the restoration of dried bloodstains in connection with medico-legal work. The latter subject it is intended to pursue in the direction of photo-micrometry during the coming year.

Professor Hills has continued his work on the post-mortem imbibition of poisons mentioned in the last report, and Dr. J. J. Putnam has, through the kindness of Miss Lucy Ellis, been enabled to continue his investigation into the frequency with which lead and arsenic are to be found in the urine.

Pathology. — Dr. W. F. Whitney and Alexander Burr, M.I.T., Inspector of the City Board of Health, have made a study of the diseases found among the animals slaughtered at the Brighton Abattoir. Their reports have been printed in that of the Boston Board of Health.

Dr. J. T. Bowen has studied the histological changes found in Keratosis Follicularis. His investigations are embodied in the paper on this subject published by Professor J. C. White. He has also made a study of Cutaneous Tuberculosis, the results of which are to be published in the Journal of Cutaneous and Genito-Urinary Diseases.

Dr. F. B. Mallory has investigated the pathology and pathological anatomy of certain abnormalities of the lower end of the trunk. His graduation thesis was based upon these investigations, and was entitled "Congenital Sacro-Coccygeal Depressions, Sinuses and Dermoid Cysts." The Faculty recommended its publication.

Mr. George L. Kingsley began a study of the pathological histology of extirpated ovaries. His premature death from diphtheria, while interne at the Massachusetts General Hospital, closed a work which was sure to have been carefully and thoroughly performed. He was a man of marked ability and promise, and his death is a distinct loss.

Bacteriology. — Drs. Ernst, Peters, Frothingham and Jackson have been conducting, in behalf of the Massachusetts Society for Promotion of Agriculture, a series of experiments as to the infectious nature of the milk of tuberculous cows, and of milk as retailed in Boston. Many specimens from the various hospitals and private physicians have been brought to the laboratory for examination and diagnosis.

Dr. Stephen A. Martin has been investigating the biological characteristics of vaccina in calves; as reported at Washington, he has obtained a mixed culture which produced vaccinia on inoculation.

Dr. J. Amory Jeffries has investigated an epidemic of hog cholera

TABLE IV.—JUNE EXAMINATIONS.

		First Class and Second Class.														Third Class.											
		Anatomy.		Physiology.		General Chemistry.		Medical Chemistry.		Materia Medica.		Path. Anatomy.		Adv. Anatomy.		Therapeutics.		Theory and Practice.		Clinical Medicine.		Surgery.		Clinical Surgery.		Therapeutics.		Obstetrics.	
			%		%		%		%		%		%		%		%		%		%		%		%		%	
1886	Passed	50		56		55		75		75		73		68				58		63		64		68		60		65	
	Rejected	27	35	19	25	10	15	11	13	15	16	9	11	20	29			8	12	1	1	7	10	0	0	7	10	6	8
	Total	77		75		65		86		90		82		88				66		64		71		68		67		71	
1887	Passed	66		63		49		69		66		67		67				69		74		79		79		73		78	
	Rejected	21	24	22	26	14	22	9	11	21	24	9	11	9	11			12	15	12	14	5	6	2	2	6	8	5	6
	Total	87		85		63		78		87		76		76				81		86		84		81		79		83	
1888	Passed	53		67		46		52		53		57		64				53		64		58		61		58		60	
	Rejected	7	11	10	13	9	16	9	14	15	22	4	6	3	4			7	11	2	3	5	8	0	0	5	8	6	9
	Total	60		77		55		61		68		61		67				60		66		63		61		63		66	
1889	Passed	67		65		55		59		61		58		56		61		59		61		61		62		53		58	
	Rejected	6	8	13	16	9	14	9	13	17	21	5	8	8	13	18	28	12	18	6	9	6	9	4	6	11	17	12	17
	Total	73		78		64		68		78		63		61		79		71		67		67		66		64		70	
1890	Passed	49		68		51		58		65		82		46		77		77		77		75		72				73	
	Rejected	28	36	9	11	11	17	7	10	12	15	13	13	26	36	11	12	7	8	7	8	5	6	0	0			11	13
	Total	77		77		62		65		77		95		72		88		84		84		80		72				84	

Third Class. — Electives.

		Diseases of Child'n.		Dermatology.		Gynaecology.		Nervous Diseases.		Legal Medicine.		Mental Disease.		Ophthalmology.		Otology.	
			%		%		%		%		%		%		%		%
1889	Passed	39		5		20		1		1		1		1		1	
	Rejected	2	5	0	0	1	5	0	0	0	0	0	0	0	0	0	0
	Total	41		5		21		1		1		1		1		1	
1890	Passed	69				3		1		1				5		2	
	Rejected	3	4			0	0	0	0	0	0			1	16	0	0
	Total	72				3		1		1				6		2	

FOURTH CLASS.

		Ophthalmology.		Dermatology.		Gynæcology.		Clinical Obstetrics.		Diseases of Children.		Diseases of Nervous System.		Mental Diseases.		Legal Medicine.		Otology.		Laryngology.		Operative Obstetrics.		Operative Surgery.		Bacteriology.		Hygiene.	
			%		%		%		%		%		%		%		%		%		%		%		%		%
1886	Passed	10	0	11	8	10	0		0	10	0	10	0	10	0	8	0	11	0	11	0			12	7				
	Rejected	0		1		0				0		0		0		0		0		0				1					
	Total	10		12		10				10		10		10		8		11		11				13					
1887	Passed	12	25	12	0	8	38			11	0	11	8	8	42	11	0	9	10	11	0			9	18				
	Rejected	4		0		5				0		1		6		0		1		0				2					
	Total	16		12		13				11		12		14		11		10		11				11					
1888	Passed	2	33	3	0	3	0		0	0	0	0	0	3	0	3	33	2	33	3	0			0	0				
	Rejected	1		0		0				0		0		0		0		1		0				0					
	Total	3		3		3				0		0		3		3		3		3				0					
1889	Passed	3	0	6	0	8	0	4	33	9	0	1	0	2	0	2	9	0	0	0	0	9	0	1	0	1	0		
	Rejected	0		0		0		2		0		0		0		0		0		0		0		0		0			
	Total	3		6		8		6		9		1		2		2		0		0		9		1		1			
1890	Passed	2	60	5	0	13	0	12	0	15	11			1	0	1	0	1	0	1	0	16	6	6	25	1	0	0	0
	Rejected	3		0		0		0		2				0		0		0		0		1	2	2		0		1	
	Total	5		5		13		12		17				1		1		1		1		17		8		1		1	

at a neighboring farm. This work is to be published in the Veterinary Journal for December.

Dr. A. K. Stone has made a series of experiments showing the presence and virulence of the Bacilli of Tuberculosis in Sputa dried and kept for three years. He has also prepared papers upon the clinical value and upon the longevity of the Bacillus of Tuberculosis.

Children's Diseases. — Assistant Professor Rotch has continued his studies of Human Milk mentioned in the last report and embodied his results in a paper read before the American Pediatric Society in June last and entitled "The Management of Human Breast Milk in Cases of Difficult Infantile Digestion."

Ophthalmology. — In addition to the regular work of this department, the Professor of Ophthalmology has devoted half an hour a week during the month of October to giving personal assistance to individual students in the use of the ophthalmoscope.

Gynaecology. — Dr. Davenport has devoted from half an hour to one hour each week for six months to students of the fourth year in work preparatory to the clinical conference.

In the Free Hospital for Women, Drs. Strong, Swift, and Washburn have afforded to students and graduates many facilities for study and observation in addition to those specified in the programme of instruction.

The whole number of students in attendance

During the year was	304
During the first term	290
During the second term	287

Of these 156 had literary or scientific degrees.

There were 75 applicants for the degree of Doctor of Medicine in the three-years' course, of whom 22 were rejected.

There were 15 applicants for the degree of Doctor of Medicine in the four-years' course, of whom 2 were rejected; 4 of the students received the degree *cum laude*.

The fourth class was composed of 23 students.

The scholarships were awarded as follows: —

1st Barringer Scholarship,		W. H. Swan . . .	3d Class.
2d "	"	J. H. Huddleston .	4th "
Faculty	"	J. E. Butler . . .	3d "
"	"	F. A. Davis . . .	2d "
" .	"	W. F. Sawyer . .	2d "
"	"	C. D. Young . . .	3d "
Cheever	"	H. S. Moran	1st "
Foster Gratuity,		F. B. Mallory . .	4th "
" "		E. H. Nichols . .	4th "

The usual statistics of the School will be found on pp. 138–142, 144, 145.

H. P. BOWDITCH, *Dean*.

THE DENTAL SCHOOL.

To the President of the University:

Sir, — I have the honor to submit the following report upon the Dental School for the year 1889–90: —

The number of students was thirty-four, divided as follows: In the class of the third or graduating year, sixteen; in the second year, ten; and in the first or Freshman year, eight. Of the graduating class one was a student of the corresponding class of last year who then failed to pass, but who was more successful this year. The number of students who were graduated at this year's Commencement was sixteen — fifteen from the third-year class, and one a student of a former year who received his degree with this class.

The subjects and manner of instruction have been substantially the same as in former years. Didactic and clinical instruction have been given by Professors and Instructors, the former in the lecture-rooms, the latter chiefly in the Infirmaries. The students of the first year have been taught as usual in the Medical School by its Professors, receiving in the subjects of Anatomy, Physiology, and Descriptive Chemistry, the same instruction as the Medical Students and passing the same examinations. Such of these students as desired have also been taught in the Operative department in the rudiments of practical Dentistry. The students of the second and third years receive their instruction in the Dental School by lectures illustrated by specimens and drawings, and clinical teaching in the practical branches of Dentistry in the Infirmaries of the Operative and Mechanical departments by practical work in the mouths of patients. As the prices for dental work in the School are merely nominal, there is an unlimited supply of persons who are willing to permit students to work for them under the supervision of skilled instructors.

The instruction in strictly dental subjects given in the Dental School by its Professors and Instructors has been in Dental Therapeutics and Materia Medica, Operative and Mechanical Dentistry, Oral Anatomy and Pathology, Orthodontia or the Regulating of Teeth, and the Mechanical Treatment of Cleft Palates, Fractures and other lesions of the Jaws.

The amount of didactic instruction in these subjects has been as follows: —

Instructors.	Subjects.	Number of Lectures.
Prof. Brackett	Dental Therapeutics	35
" Fillebrown	Operative Dentistry	30
" Chandler	Mechanical Dentistry	28
Instructor Briggs	Materia Medica	25
" Stanton	Oral Pathology and Anatomy	28

Drs. Wilson and Grant, Instructors in Orthodontia and Cleft Palate treatment, having resigned, and none others having been appointed in their places, the instruction in these subjects naturally fell to the Professors of Operative and Mechanical Dentistry, respectively. A very interesting and instructive evening lecture was also given by Dr. Stanton, as a part of his course, illustrating the development of teeth from the embryo to the period of eruption, by means of some seventy lantern slides.

The Professors of Operative and Mechanical Dentistry, in addition to the time given to their lectures, have each devoted at least one hour a week to clinical teaching in their respective departments.

During the year the title of Dr. Brackett's professorship was changed to the Professorship of Dental Pathology, and Dr. Briggs was made Assistant Professor of Dental Materia Medica and Therapeutics.

Dr. Eugene H. Smith was appointed Instructor in Orthodontia, but no one has yet been named for the Instructorship of Cleft Palate Treatment, &c., a subject of growing interest and importance, which, at present, can receive no sufficient or satisfactory elucidation in the School. Drs. Cooke and Hopkins at the close of the year declined renomination.

From the steady growth of the number of students our quarters are becoming less and less adequate for proper instruction in the practical branches of our profession. In both Infirmaries the students are so crowded that they are unable to work to advantage, not only for want of "elbow room," but especially for want of proper light. In the Operating room particularly, where the best light is absolutely requisite for good work, the space is filled with chairs, in three or more tiers, many at a considerable distance from the windows, the sources of light, rendering it impossible in the short and dark afternoons of the winter season (which are a majority of the afternoons of the School year) to work to advantage, or sometimes to work at all. The School has from its inception been handicapped by poverty, and, though it is now happily out of debt and this burden is off of the shoulders and hearts of its officers, the increasing numbers render imperative our call for "more room — more light."

THOMAS H. CHANDLER, *Dean.*

THE BUSSEY INSTITUTION.

To the President of the University:

Sir, — I respectfully submit the following report upon the Bussey Institution for the year 1889–90: —

Stated courses of instruction in Agriculture, Horticulture, Botany, Entomology, and Agricultural Chemistry were given by Messrs. Motley, B. M. Watson, Kidder, Tuttle, and Storer. Three students attended the exercises.

As in the preceding year (1888–89), so in the present (1889–90), numerous repairs were put upon the buildings, to make good the depreciations which had occurred in times of pecuniary distress. The farm prospered under the superintendence of Mr. Northway. A very large crop of hay was harvested and a considerable amount of work was done upon the task of bringing the estate into a neat and presentable condition, by the judicious application of its own resources, without trenching in any way upon the income of the School.

Gifts of harnesses for farm use were received from Dr. D. H. Storer, and of agricultural journals from Mr. B. M. Watson, Jr., and from Dr. D. D. Slade.

F. H. STORER, *Dean.*

THE VETERINARY SCHOOL.

To the President of the University:

Sir, — I beg to submit herewith the eighth annual report of the School of Veterinary Medicine: —

Of the six members of the third class, all presented themselves for the final examinations, in which all but one were successful. There were six graduates; four from the third class, one from the first class (who had fulfilled his entire time of study), and one whose age had previously prevented him from receiving the diploma. The remaining successful member of the third class, being of less than the required age, was not graduated. Of the two members of the second class, one remains in the class, and one has left the School, having completed his three years of study. Of the twelve members of the first class one graduated, two advanced into the third, and four into the second class; three remain, and two have closed their connection with the School. Besides these, two who were Special Students last year in subjects of the first-year's course, have passed the examinations and entered the second class as regular students.

There were eight successful candidates for admission to the School, two of whom, however, have been unable to go on with the work, and one, a graduate in medicine, goes directly to the third class. There are also five Special Students upon the roll.

Thus there are three students in the third class, seven in the second, eight in the first, and five in the special, making a total attendance of twenty-three, which is about the usual number.

The number of applicants for admission to the School this year (nine) is about the usual number, notwithstanding the fact that candidates must now, for the first time, pass an examination in either Latin, German, Algebra, Plane Geometry, or Zoölogy, in addition to the subjects previously required. This, so far as it goes, is a gratifying result; for, when it was determined to make the entrance examination one that would more nearly equal that of the English veterinary colleges, it was clearly seen that the demand was so much in excess of what had been asked from intending veterinary students in this country, as to make the experiment a hazardous one for the School.

The total number of students continues to average about twenty, and of this number nearly all come from the immediate neighborhood of Boston, notwithstanding the fact that we have a great many letters of enquiry from all parts of the United States and Canada. This, it seems to me, is due to one or more of several causes: 1st, the character of our entrance examination; 2nd, the length of time required from the student, and in some degree the increased cost arising from this unusual requirement; 3rd, the necessarily limited area of the School's influence, as described in previous reports; 4th, the little demand that there has been in the profession for schools of a high grade; and 5th, the opposition to the School that has been created by the necessity which the officers of the Hospital have been under of competing in ordinary practice.

Until most of these causes are removed, it does not seem that the numbers of our students can be greatly increased. There are only two means of removing these difficulties — endowment and time. The first would make the School independent of the earnings of the Hospital. In time it will become known how great the facilities are which this School offers to earnest students of Veterinary Medicine; and when the profession demands, as it will before very long, the three-years' graded courses, our classes will be larger.

The Veterinary Hospital. — For the twelve months ending October 31, 1890, 2648 patients have been treated at the Hospital. Of these, 1619 were "out-door" clinics (1164 horses, 408 dogs, 45 cats, 2 cows), and 1029 were "in-door" patients at the Village Street buildings. Of these last 596 were horses, 405 dogs, 6 mules, 1 cow, and 21 cats. In addition 2309 horses were shod during the year.

These figures show a steadily increasing patronage of the Hospital and Forge; in fact, the business is now so large that it is done with considerable difficulty in so small a place, and a serious question of expediency has been thrusting itself upon us for the last six months. I think, very decidedly, that the Hospital should be enlarged soon, if we are to go on without endowment.

Dr. Daniel Emerson, elected to the position of Resident Surgeon last year, resigned that office at the expiration of the time for which he was appointed, as he preferred the greater freedom of a private practice. Dr. Wilbert Soule has been chosen to fill the position.

Finances. — In addition to its own general expenses the Hospital has earned enough to pay a deficit of about $2605 in the account of the School; the entire salaries and wages of its officers and men; taxes upon one of the buildings; the interest, at 6%, upon the cost of buildings erected for the purposes of the School; the interest, at 6%, upon all advances made by Harvard University for former annual deficits created by the School; and a cash surplus of $388.35 — a total earning of $19,698.45 (almost $20,000), of which only $2395 came from the School.

In this division of my report for 1887–88, after showing a deficit of $1576.12, I said that the most desirable way of preventing anything of the sort in the future would be to make the buildings the absolute property of the School by endowment; or, failing this, among other things to be tried was, first, "to enlarge the Hospital staff at the risk of not increasing, proportionately, the earnings." In accordance with this recommendation the office of Resident Surgeon was created. So long as a good man can be kept in this place there need be no fear of a further deficit. If, with a proper resident surgeon, we can now have a larger Hospital, the income can be materially increased and a freer expenditure on the School will be possible.

CHARLES P. LYMAN, *Dean.*

THE LIBRARY.

To the President of the University:

Sir, — In leaving for a year's absence under a permission of the Corporation, I shall not be able to make up the usual Library statistics for the College year 1889–90, and have left it for the officers who usually assist me in these reports to append the necessary statements and tables.

Within a month of the close of the year I find it very apparent that

the main lesson of our year's experience is a matter which has been pressed on our attention with renewed force.

Our funds are inadequate to meet the growing demand for books, and the nature of this demand is one that occasions serious consideration. The two functions of the University are to teach young men and to advance research. Both require books. Those necessary for the immediate objects of teaching are not numerous; but when with those objects we join the aims of the large community of specialists which is gathered about the University we encounter a problem in administering to their literary wants which is not without difficulties. In the change in the methods of study, not only of science but of every other department of learning, which has come over the present intellectual conditions of life, there is a greater community of interest among scholars everywhere than ever existed before. The rapid and broad interchange of thought which characterizes our life in general, placing no geographical limits to observation, is even more manifest in the pursuit of knowledge and the deductions which spring from records of knowledge. Every field of information is mapped in its own journals and in the publications of societies formed for the furtherance of specific investigation. This periodical literature is of the first necessity in research. It keeps every specialist abreast of the progress in his own department, warns him of fields preëmpted by others, and economizes force by sub-dividing the aims of study. It has therefore become necessary for the Library to increase rapidly of late years this class of literature, and there is no sign of any abatement in that increase. With all this enlargement on our own shelves, we can offer to the specialist but a small portion of all the contemporary affluence of such help. What we do offer seems necessary, and it does not appear that we can abridge the extent of it without seriously impairing the advantages which the Library ought to offer to the specialists of the University. The total cost of supplying this periodical and serial literature is, however, great. It entails also a large cost for binding, and this is increased beyond what we would naturally pay for binding from the fact that we do not get the advantage of having the binding done in the mass by the publishers of these works, and that we have to do the greater part of it in America, at about double the cost of binding in Europe. All these periodicals and serials together cause an annual charge at present of about $5000, which we have to carry forward from year to year, with a tendency to increase.

The drawbacks on this kind of increase are obvious. It stocks our shelves with a mass of publications which convey preliminary and tentative results, some to be superseded by the sifting and enlarging

processes which produce separate monographs or books in the ordinary acceptation of that word. There is, of course, a tendency in every publication to fall behind advancing knowledge, and the literature of every age, so far as it depends on the condition of knowledge, becomes antiquated in time. Monographs, however, become antiquated less rapidly than the serials out of which they grow; and, as offering a certain compression of knowledge, they are for longer periods more serviceable than periodical issues. Thus it is that the mass of this piecemeal contemporary publication becomes after the lapse of years mainly serviceable as sources of the history of knowledge, rather than as embodiments of the last results of investigation. In this way the more we use our money for periodicals and serials the more we diminish our capacity for buying the solidified results of knowledge which is found in monographs, using this term in a broad sense.

The experience of the past years has made this more apparent than ever. I assume that a reduction of our periodical and serial list to any great extent is not desirable, and I know that the cost which that list entails prevents our buying as much of the more lasting literature of books as we ought to buy to keep the Library effective.

The obvious relief of this situation is an increase of our book funds. That will of necessity compel the raising of more money to provide shelf-room, since we have nearly reached the limit of the present accommodations for the storing of books.

I again refer you to the details of the year's work in the appended statements of other officers of the Library.

JUSTIN WINSOR, *Librarian.*

July 1, 1890.

Three numbers of the *Bulletin of Harvard University* have been issued under the immediate charge of the Librarian during the past year. Of the *Bibliographical Contributions*, also issued separately by the Library, five have been published, namely: No. 34, *The Dante Collections in the Harvard College and Boston Public Libraries*, by W. C. Lane, Assistant Librarian; No. 35, *Notes on the MS. of Shelley in the Harvard College Library*, by George E. Woodberry; No. 36, *The Treat Collection on Ritualism and Doctrinal Theology*, by W. C. Lane, Assistant Librarian; No. 37, *Bibliography of Hogarth*, by Frank Weitenkampf; No. 38, a *Sixth List of Publications of Harvard College and its Officers*, 1888–89, by W. H. Tillinghast, Assistant Librarian.

The accessions to the University Library for the year, and the present extent of the various departments, are as follows: —

Principal Departments.	Volumes added.	Present extent in	
		Volumes.	Pamphlets.
Gore Hall (College Library) .	13,365	281,916	267,092
Law School	753	25,251	3,245
Scientific School	30	2,738	800
Divinity School	506	21,576	3,852
Medical School	169	2,008	. . .
Museum of Zoölogy	683	21,260	13,294
Astronomical Observatory . .	336	6,752	6,891
Botanic Garden	124	5,516	3,455
Bussey Institution	15	3,100	1,010
Peabody Museum	70	1,138	1,224
Totals	16,051	371,255	300,863

If to this total of 371,255 volumes be added the 4321 volumes of the permanent collections in the laboratories and class rooms, we have a grand total of 375,576 volumes for the University Library.

The Whitney Library of Geology, a component part of the collection in the Museum of Zoölogy, is not yet included in the count of the Museum Library; while on the other hand no deduction has been made in the general library for volumes parted with on exchange account.

The present extent of the laboratory and class-room libraries is:

	Permanent.	On Deposit.	Totals.
Laboratories.			
Chemical	567	. .	567
Zoölogical	138	. .	138
Geological	11	. .	11
Meteorological	56	. .	56
Botanical	440	. .	440
Physical	. .	323	323
Class-Rooms.			
Greek	313	. .	313
Latin	43	. .	43
United States History	745	. .	745
Political Economy	530	. .	530
Mathematics	184	136	320
French	539	. .	539
English	28	. .	28
Sanskrit	22	. .	22
German	289	. .	289
Social Questions	416	. .	416
Totals	4,321	459	4,780

An assistant is sent from the Central Library every week to examine the shelves of these libraries by the shelf-lists, and the titles of missing books are reported at once to the officer of instruction in immediate charge of the library where such loss or misplacement has been discovered. Temporary loans of books from Gore Hall are made to these libraries to facilitate the instruction of the several departments. In 1888–89 six of these libraries were open evenings, but in 1889–90 two only were thus available for use when Gore Hall was closed. Towards the close of the year the formation of a class-room library in Philosophy was begun, and a good number of volumes have been bought.

Of the accessions to the Gore Hall Collections there were added by gift 7633 volumes and 9529 pamphlets; and the accessions also include 838 volumes of bound serials (received in parts), and 672 volumes made by binding pamphlets.

The accessions of recent years to the University Library (excluding the laboratory and class-room libraries) have been reported as follows: —

In 1879	10,389 vols.	In 1885	14,558 vols.
" 1880	7,247 "	" 1886	9,191 "
" 1881	9,804 "	" 1887	11,924 "
" 1882	9,192 "	" 1888	16,468 "
" 1883	9,818 "	" 1889	12,253 "
" 1884	12,360 "	" 1890	16,051 "

The following tables show the use of books at Gore Hall in 1889–90 as compared with previous years: —

	1883–84.	1884–85.	1885–86.	1886–87.	1887–88.	1888–89.	1889–90.
1. Books lent out . .	48,655	52,322	60,195	62,861	65,689	68,892	74,906
2. Used in the building	9,047	9,433	8,816	12,041	15,267	14,299	17,208
3. Overnight use of reserved books .	11,399	13,791	18,505	20,052	20,360	21,802	24,989
Total (excluding No. 3, which is incl. in No. 1)	57,702	61,755	69,011	74,902	80,906	84,191	92,109
Officers of instruction reserving books .	48	48	56	56	. .	. .	. .
No. of books reserved	4,782	5,230	5,840	6,280	6,549	5,848	6,215

It is no longer practicable to indicate the number of instructors reserving books, since the classes in several courses are now divided among more than one instructor, and we have no means of knowing whether they all make use of the system.

The extent of the number of books reserved — of whose hall-use no record is kept — has a tendency to decrease the number of volumes used in the building, of whose use record is made. In addition to the books reserved by instructors, now amounting to 6215 volumes, there are in the reading-room 1820 volumes carefully selected for students' reading by the instructors in their several departments. Of these, 1308 are English, 349 French, 119 German, and 44 Italian. The use of these books is not governed by the restrictions applied to reserved books, but the books may be taken out as other books are.

In the Delivery Room are 5424 volumes, all of which are accessible to students. Of these, 3146 volumes are bound periodicals which may be taken out as seven-day books, and 2278 volumes are for reference only, comprising dictionaries, encyclopædias, and the most useful books of reference in all departments.

Of the 1329 books sent to the "Annex" during the year, 286 were from the class of "reserved books," while the proportion last year was 299 out of 1531. The number of separate students of the "Annex" who borrowed books during the past year was 84 — a large increase over the number during recent years.

SUNDAY USE.

	1882–83.	1883–84.	1884–85.	1885–86.	1886–87.	1887–88.	1888–89.	1889–90.
Sundays open	36	36	37	37	37	37	37	37
Persons using	2,268	2,448	2,631	2,842	2,880	2,894	3,024	3,089
Average . .	63	68	71	76	77	78	81	83
Highest no. .	92	95	105	108	118	106	108	118

The following table shows for a series of years the use made of "Admission-Cards," by which students have access to special classes

ADMISSION—CARDS.

	1882–83.	1883–84.	1884–85.	1885–86.	1886–87.	1887–88.	1888–89.	1889–90.
History . . .	46	45	52	68	74	71	81	53
Science . . .	16	18	12	14	12	14	9	6
Art (incl. Music)	14	12	14	16	13	16	24	19
Literature . .	42	37	42	49	62	54	27	32
Classics . . .	36	42	53	52	47	42	24	22
Philosophy . .	5	6	8	9	8	9	16	9
Theology . .	3	8	9	12	15	11	6	4
Polit. Economy	5	8	12	44	64	49	25	13
Total students	167	176	202	264	295	266	212	158
Times of use .	3,340	3,520	4,020	5,820	7,375	7,980	8,390	6,490

of the books for investigation at the shelves; the falling off in the past year is due partly to the removal of the United States Documents to the Reading Room, where they are accessible without the use of a card, and partly to intentional restriction of the privilege — a privilege which operates directly to the disadvantage of other users of the Library, and should therefore be granted with circumspection.

The College teachers who have students under instruction in the methods of research are still given such facilities as the Library building affords for the accommodation of their classes; but the advantages of the building are in this direction far from what they should be, and some checks upon this kind of research among the students are necessarily imposed.

STUDENTS' USE OF THE LIBRARY.

Students of	1885–86.		1886–87.		1887–88.		1888–89.		1889–90.	
	Whole No.	No. taking books.	Whole No.	No. taking books.	Whole No.	No. taking books.	Whole No.	No. taking books.	Whole No.	No. taking books.
Divinity . . .	25	25	20	20	16	16	26	26	36	36
Law	154	136	180	108	215	175	217	138	254	151
Scientific . .	22	18	14	10	20	18	35	21	65	37
Resident Grad.	64	62	56	54	83	76	85	74	93	81
Senior Class .	232	214	239	231	237	234	214	206	278	254
Junior Class .	236	228	238	215	214	209	252	249	244	232
Sophom. Class	232	216	224	206	281	234	264	238	282	253
Freshm. Class	258	201	280	195	295	229	309	215	323	215
Sp. Students .	. .	. .	. .	. .	. .	. .	. .	. .	144	100
Totals . .	1231	1100	1251	1039	1331	1191	1402	1167	1719	1359

The percentage of users among the undergraduates during recent years is given in the following table: —

	1879–80.	1883–84.	1884–85.	1885–86.	1886–87.	1887–88.	1888–89.	1889–90.
For Seniors . .	88	90	90	92	96	99	97	91
For Juniors . .	83	88	93	96	90	98	99	95
For Sophomores	83	85	86	93	92	94	90	90
For Freshmen .	65	80	80	78	69	77	69	67

Fourteen years ago* only 57% of all the College students used the Library. In the last year, of the 1127 undergraduates only 173 failed to borrow books, and some of these probably used the reserved books in the Reading Room. The libraries of the class-rooms and

* See table in previous reports.

laboratories, as well as those of the students' clubs, doubtless provide reading, special as well as general, for a considerable number of undergraduates. These additional resources very likely account for the slight falling off of users during the past year; though, as is shown in a previous table, there has been the customary increase in issues of books.

These statements do not cover the use of "reserved books." Nor is there any record of the use made of the 508 periodicals, current numbers of which are on file in the Reading Room.

The number of persons registered and entitled to take books away from the Library building is as follows: —

Students	1,491
Instructors	127
Others	486
Total	2,104

Mr. Frank Carney, who under Mr. Tillinghast has charge of the shelves, reports that 5513 volumes have been permanently placed in the new stack since the last report, making 115,807 so placed out of the volumes constituting the Gore Hall collection. Until the original Gore Hall is reconstructed, there can be no further progress made in reclassifying the Library.

Nearly all the space available for the convenient shelving of books has now been used. When this limit is reached, the question of providing room for the additions to the Library will become grave, since recourse must be had to expedients directly tending toward complexity, and decrease of light. The accessions of the past year alone would, if placed together, completely fill nine of the rows in the stack.

Mr. Carney verified the shelf-lists of the classifications in the stack, between the 26th of June and the 25th of July, showing about 150,000 volumes. The number of volumes which failed to be accounted for was 93. Of those reported missing in previous years 18 were found in their places, having been silently returned during the year. About half this number were returned in June. Of books reported missing since 1883 there are still 290 unaccounted for; 141 having disappeared from the reserved books, and 149 from the stack. Of these 93 unaccounted-for volumes of the year just closed about one half have disappeared from the books of reference, reserved books, and other collections exposed to the handling of all frequenters of the Library, the other half having disappeared from the shelves to which only the staff of the Library, officers of the College, and a limited number of other persons have access.

In the stack, particularly in those sections most frequented by holders of "admission-cards," many cases of disarrangement were

discovered, 200 books being found on wrong shelves, and 283 shelves more or less disarranged. Such misplacement always causes delay in finding books, and in the case of books placed on a wrong shelf is equivalent to actual loss. It is clear that the facility of access to the shelves now granted brings with it results which in the interest of the greater number of users should be counteracted.

Mr. Lane, Assistant Librarian, furnishes the following report of the work of the Catalogue department: The total number of titles catalogued for the College Library in Gore Hall during the year (1889–90) has been 7692, and for the various department and class-room libraries 1438. Owing to the unusually large number of books received in the course of the year it has been impossible to take up systematically any of the 11,000 titles catalogued some years ago on the author catalogue only and now waiting to be incorporated into the subject catalogue. The Arabic collection brought home by Professor Toy and the Sanskrit books brought by Professor Lanman, together with the Sanskrit manuscripts presented by Mr. Fitz Edward Hall, are also still uncatalogued, though accessible for use if needed. In addition to these there are about 4700 volumes now (Oct. 1) waiting to be catalogued, almost all very recent accessions, beside 224 volumes of Italian manuscripts received in June from the Massachusetts Historical Society. This MS. collection, however, consisting of the words of some 1567 Italian operas, sacred dramas, cantatas, prologues, etc., need not draw heavily on the time of the Catalogue department, as it is accompanied by a volume of contents and index.

The 4700 volumes, however, of recent uncatalogued accessions is far in excess of the number usually on hand at this time of year (about 2000), and makes an addition to the cataloguing staff necessary.

The work of the past year may be compared with the work of other years as follows: —

	1883–84.	1884–85.	1885–86.	1886–87.	1887–88.	1888–89.	1889–90.
1. Gore Hall cards prepared	21,524	30,968	32,580	29,229	23,696	21,256	24,384
2. Titles catalogued for departments	. . .		957	1,021	1,291	1,721	1,438
3. Volumes received in Gore Hall	9,879	12,442	6,730	9,108	10,885	9,045	13,140
4. Approximate hours' work of the assistants of the catalogue department.	24,241	22,231	23,020	22,113	20,696	18,293	18,831

The use of printed cards in the public card catalogue has been continued on the same lines and in about the same proportion as in previous years.

Inasmuch as these cards are made by using the type of the *Bulletin*, it is only those titles which are entered in the list of accessions there, that is, nearly all the recently published books and pamphlets but only the more extensive and important works of earlier date, that can be printed on cards. All others, or about half the accessions of the year, are still catalogued on written cards.

It has been the practice for some years to take a copy of the accessions list in the successive Bulletins, and, by cutting it up and pasting the titles separately into a large blank book, to make a consolidated catalogue in one alphabet of all the books which have been noted in the Bulletins. In this way two large volumes have been filled containing the titles of books received from 1876 to 1889 inclusive. Instead of going on with a third volume for future additions, we are trying a new variety of card catalogue on the same general plan as that of the University of Leyden and of the Society Library in New York. The peculiarity of these catalogues is that the cards or slips, instead of being kept in drawers, are bound together like the leaves of a book in handy little volumes. Larger slips of stout manilla paper (7 by 4 inches) are used in place of the usual cards, and a single copy of each title is printed on these slips at the same time that the cards are printed. A simple form of binder to fasten the slips together in books of convenient size has been adopted, and this new beginning of a catalogue, at present in twenty-five volumes, was placed on a shelf in the reading-room in August. An opinion of its usefulness or of what it may lead to can be given after a longer trial better than at present.

The Index to the Subject Catalogue has made better progress than during the previous year. 128 pages are now printed, and the manuscript is finished nearly through the letter S. There is every reason to expect that it may be completed in the course of the next winter.

The work of the Ordering department, in charge of Mr. Tillinghast, is shown in the following statement: —

The income of the Library funds available for the purchase of books in the past year was considerably smaller than usual, owing to a general reduction in the rate of interest, combined with heavy purchases during 1888–89; consequently it was necessary to reduce materially the number of orders sent in the spring of 1890. Notwithstanding this precaution, the income for 1890–91 was diminished by heavy payments early in the year, and it seemed advisable to increase the unpledged balance by countermanding all orders (excepting

continuations) which had been sent before January 1, 1890. This was done in August, and the cancelled orders have been placed by themselves, in order that the instructors who handed them in may have an opportunity of examining them and indicating which, if any, they wish renewed.

At the close of the Library year the estimated cost of orders then out (including "continuations," reckoned at $6191) was about $8377, and it was expected that about $4327 of these would come in, to be paid for during the coming year. We have an income for the next year of about $16,500; against this amount, reduced by heavy payments early in the year, must be set off about $7127 (that is: orders out, $4327; periodicals and binding, $2400; freight, $400), leaving a free balance of not much over $4600. It is further to be considered that some of the items included in our annual book income are funds with such specific objects that they must be left out of view in providing for general purchases.

The following table contains a summary of our financial condition during six years: —

	1884–85.	1885–86.	1886–87.	1887–88.	1888–89.	1889–90.
Income for books *	$17,570	$16,245	$19,341	$20,407	$19,871	$16,682
Spent	16,533	13,923	14,549	16,062	17,347	15,172
Balance	1,037	2,321	4,791	4,345	2,534	1,510
Appropriation . .	17,500	none.	17,500	19,000	20,050	15,480
Unpledged balance	6,396	7,180	12,082	12,080	11,238	5,672

During the year 1888–89 we sent out orders the estimated cost of which was about $7500; during the past year they have amounted to $6276. This amount was divided among agents as follows: Domestic, $895, against $1185 last year; English, $2043, against $2550; French, $1234, against $910; German, $1401, against $2442; Italian, $200, against $325; Scandinavian, $52, against $106.

The following table shows the proportions of certain items to income and appropriation: —

* The items of income include unexpended balances of the previous year.

Year.	Proportion of appropriations to income.	Proportion of liabilities to appropriations.	Proportion of money pledged for annual continuations, etc., to appropriations.
1880–81	.89	. .	. .
1881–82	.81	.76	.44
1882–83	.91	.70	.29
1883–84	1.04	.87	.47
1884–85	.99	1.01	.63
1885–86	none made	.87 (to income)	.55 (to income)
1886–87	.88	.82	.41
1887–88	.93	.78	.42
1888–89	1.01	.81	.43
1889–90	.92	1.11	.71

The following table indicates for five years past the extent and variety of orders dealt with by the Ordering department, and shows that 14,000 slips are arranged and kept in mind in the daily work of those in charge of this department: —

Order slips on hand October 1.	1886.	1887.	1888.	1889.	1890.
Book orders out	1,487	1,539	2,112	2,875	1,242
Continuation orders out	1,637	1,819	1,951	2,163	2,272
Total active orders .	3,124	3,358	4,063	5,038	3,514
Cancelled orders. . . .	6,000	6,400	6,800	7,200	7,675*
Deferred orders	531	488	541	533	1,488
Countermanded orders .	. .	. .	. .	. .	943
Slips for reference use .	110	186	124	130	234
Slips of little value . . .	76	76	76	76	76
Grand total	9,841	10,458	11,604	12,977	13,930

The estimated cost of continuations, which is a fixed liability for our book funds, — though only about one-half of the charges is likely to be actually incurred each year, owing to the irregularity of such serials, — has been growing rapidly of late years. It has risen from a liability of $2008 in 1880–81 to $6079 for last year, and $6191 for the year just closed, an increase of 300% in eight years. There are 2274 order-slips for continuations now in the order-drawer, which are

* This number results from an actual count; the numbers of cancelled orders given for earlier years rested on estimates, and, proving exaggerated, have been proportionally reduced.

divided among our agents as follows: Trübner, 460; Reinwald, 369; Harrassowitz, 940; all others, 505.

There were received during the year at Gore Hall 4404 slips of titles of books which users of the Library thought should be bought. Of these 819 were found to be already in the Library. The total number of orders finally sent forward to agents was 2505, ranging from 38 in April, 1890, to 496 in March, 1890. Of this total of 2505 there was urgency for promptness in despatching orders in 128 cases, and in these cases the orders were sent either on the day of receipt or on the following day.

Our two principal American agents have procured for us within the year about 70% of the books we have ordered. Our three principal foreign agents, in London, Leipzig, and Paris, procured for us within the year not far from 83% of our orders. Within the last few years there has been a considerable improvement in the assiduity of our principal agents. In 1883–84 they procured 64% of our orders; this last year the same agents secured 83%. Our French agent has carried out a revision of his continuation list, and supplied us with a large number of volumes and parts which should have been in our hands much earlier; it is hoped that supply will now keep pace with publication. It appears that we receive yearly about 9 English shipments, 7 German, 5 French, 3 Italian, and 1 Scandinavian.

Mr. Henry C. Badger, Curator of Maps, has made the following report: —

The only noteworthy interruption of the map cataloguing was the stamping, numbering, and placing of our small collection of Plates in portfolios. The complete Index of authors and subjects prepared for those will be found useful. It is appended to the small volume giving the list of Plate portfolios.

The cards for the maps in portfolios have been prepared up to portfolio 4000. This covers about 300 occupied portfolios for the year, and something more than a thousand so far altogether.

Mr. John H. Storer, Curator of Coins, reports satisfactory progress in the work of cataloguing the coins. A few new coins have been added during the year, bringing the number of modern specimens up to nearly 1600.

In view of the strong interest in behalf of a new Reading Room that has developed among students and graduates since Mr. Winsor's departure, that portion of his Report for the preceding year which depicted the evils of the present state of things, is here reprinted. The lapse of a year has but emphasized the statements.

"In conclusion I wish to explain the insufficiency of the building of the College Library, and to show how that insufficiency embarrasses the administration of the department and abridges the privileges of the users: —

I. There is need of more room for shelving books. Until we have more room we cannot economically reclassify the scientific part of the Libray. For twelve years the users of that part of the Library have suffered from lack of such a classification. The growth of the collection largely increases this need year by year.

II. There is not enough reading-room accommodation. Class-room libraries have been resorted to to relieve the pressure upon the Library in this respect; but the increase of the reading-room use of the Library is so rapid that no expedients of this kind can meet the evil. We have been obliged recently to convert some parts of the gallery in old Gore Hall into reading-rooms.

III. The eyes of the students, and their bodily health in general, are impaired by the inadequate light and foul air of the reading-room.

IV. The deprivation of the use of such reading-room facilities as we have during the long evenings of the months from October to March — being the greater part of the College year — is generally thought to occasion a great abridgment of opportunities for the students. The present building has no means of lighting it artificially. There seem to be good reasons to dread the introduction into it of gas or of electrical currents brought in from the public streets.

V. The delivery-room is not sufficient for the present number of users of the Library. Its size does not permit the card-catalogue cases to be extended so as to admit of more persons using them at once. The embarrassments from this source are very manifest in respect to certain methods of instruction in the College.

VI. The obvious way to remove all these difficulties is to convert the old Gore Hall into a second stack, and to build a new reading-room which shall be large, light, and well ventilated. The new methods of instruction require also various minor reading-rooms to take what is known as the "reserve book" system. To carry some portions of the instruction to its legitimate conclusions would also require a number of rooms to be used for the meeting of small advanced classes. A reading-room constructed with such adjuncts would enable us to connect what are now known as class-room libraries immediately with the Library proper, insuring better oversight and a useful propinquity to the other books of the Central Library."

WM. H. TILLINGHAST,
Assistant Librarian.

THE HERBARIUM.

To the President of the University:

Sir, — The accessions to the Herbarium during the past year from American sources have been as follows: From various parts of the United States, over 1200 specimens; from Mexico, about 850 specimens, including the collections of Mr. C. G. Pringle in northern Mexico, which are especially rich in new and little-known species, and those of Dr. E. Palmer and Mr. T. S. Brandegee in Lower California; from Canada, 575 specimens from the collections of the Government Survey, of which the mosses (400 specimens) were obtained by purchase; from Porto Rico, 600 specimens of Sintenis' collection, by purchase; and from Bolivia, 670 specimens collected by Miguel Bang, also by purchase. There have been received through the kindness of foreign correspondents: from W. T. Thistleton Dyer, Director of the Royal Gardens at Kew, about 700 specimens, chiefly of Chinese, Tasmanian, and Brazilian origin; from W. Barbey, of Valleyres, Switzerland, 126 specimens of Dr. Schweinfurth's collection in Arabia Felix; from P. MacOwan, Director of the Botanic Garden at Cape Town, 300 specimens of South African plants; and from Baron Ferdinand von Mueller, of Melbourne, 240 species of Australian plants.

There has also been acquired by purchase, through the liberality of a few friends of the Herbarium, the large collection of American and foreign mosses forming the herbarium of the late Thomas P. James, of Cambridge, which contains many typical and rare specimens of our native moss-flora, and in this respect supplements largely the Sullivant collection of mosses already in our possession. Through the generosity of Mr. George C. Woolson, of Passaic, N. J., the Herbarium has received as a gift the entire botanical collections (with the exception of the grasses) of the late Dr. George Thurber, of Passaic, together with the right to select for purchase any desiderata from among the grasses, with their accompanying manuscript notes. As Dr. Thurber was for many years the highest authority in this country upon that order of plants, his herbarium became richer than any other in the grasses of the earlier collections made in our western and southwestern territories, and the opportunity to secure such of them as we do not already possess is of special importance. Notice has also been received from the executors of the late John Ball, Esq., of London, that a large portion of his herbarium, very rich and valuable in some directions, will be sent to this Herbarium for its benefit, and for such distribution among American institutions

as may seem most conducive to the interests of botany in this country.

The number of sheets that have been mounted for the Herbarium during the year is 4833. The precautions that were taken last year for the preservation of the collections in the cases have proven successful to a very satisfactory degree. The specimens have perhaps never been so free from insects or so little affected by dampness while in the present building as they now are. The additions to the library amount to 124 volumes, of which 48 have been bought, and 126 pamphlets.

The most important event of the year, however, in relation to the Herbarium has been the action of members of the Visiting Committee and a few other liberal-minded friends of the department, who in June last generously guaranteed for five years an annual addition of about $3500 to its income. This at once rendered possible the securing of competent assistants, to whom could be entrusted the duties that have hitherto absorbed the time of the Curator to the detriment of more important work. The services of Dr. B. L. Robinson have already been obtained for the Herbarium, and the coming year may be expected to show not only satisfactory progress made upon the "Synoptical Flora of North America," but an advance in other lines of botanical work and increased facilities for research both in the Herbarium proper and in the library.

The publications during the past year include the completed revision of the "Manual of the Botany of the Northern United States," to which reference was made in the last report, a paper by the Curator chiefly upon Mr. Pringle's Mexican collections of 1888–89 with descriptions of many new species, and some minor articles.

SERENO WATSON, *Curator.*

3 DECEMBER, 1890.

THE BOTANIC GARDEN.

TO THE PRESIDENT OF THE UNIVERSITY:

SIR, — As Director of the Botanic Garden I have the honor to present the following report for the academic year 1889–90: —

With the exception of the last weeks of the year, the season was favorable for the classes of plants which we cultivate. It will be remembered that our policy for a few years past has been to diminish as far as practicable the number of species cultivated, and to increase the number of specimens of the species which experience

has shown are of most use to our students. This policy has led us to select largely the species which are exposed to the least risk of failure, and which can, in short, be cultivated cheaply. Hence we are less dependent than formerly upon differences in seasons.

It gives me pleasure to state that, although the aggregate number of species has been considerably reduced, the Garden maintains its attractiveness for our students, for the pupils of our public schools, and for the public. The attendants report that on Sundays and holidays the number of interested persons visiting the Garden is very large; the number this year being considerably larger than in previous summers. The interest has seemed to depend largely upon the more effective grouping of certain classes of plants, and upon the very fair success which has attended strenuous efforts to have the plants plainly labelled. In every effort to increase the efficiency of the Garden I have had the cordial coöperation of the Head-Gardener and of his first assistant. Their good judgment and energy make it perfectly safe for me to entrust the Garden to them under the direction of the Instructor in Botany, Mr. W. F. Ganong, during my coming year of absence.

The necessary repairs made on the houses and the greenhouses have been extensive and costly, but so thorough that little will need to be done during the coming year.

The enormous number of flowers and of plants required by the very large classes could not be supplied by the Garden unaided. The aid given by Mr. B. M. Watson, Jr., of the Bussey Institution, has been sufficient in every way. The specimens furnished by him have been generally good, and have been received in good condition. Certain modifications in providing the supply for the next year have been agreed upon, and the details of remuneration satisfactorily arranged.

The Garden has been able to supply a certain number of plants and flowers to the Society for the Collegiate Instruction of Women at a rate of compensation which simply covers the expense. There seems to be no reason why the arrangement should not be continued.

The numbers of students in attendance upon the different courses in Botany were as follows: —

Natural History 3	150
" " 7	16
" " 5	44
" " 11	3
Total	213

Certain sums of money previously announced as subscribed to the Botanic Garden and Botanical Museum have been paid during the last fiscal year, and are duly acknowledged in the report of the Treasurer.

In addition to these, the Director gratefully reports the following gifts: —

Miss Anna C. Lowell, towards the Lowell Fund for a Botanic Garden	$1000
A friend, for present use in the Botanic Garden and Botanical Museum	1500
Mr. Warren, for present use	100
Mr. Hammond, for present use	100
Mrs. S. D. Warren, towards the completion of the Botanical addition to the Museum	2000
The same, for present use in purchase of specimens	1000

The rooms in the Botanical addition to the Museum will be ready for occupancy during the coming year. For the first year or so, we shall use as far as possible the tables, cases, and shelves taken from Harvard Hall; but many of these are but poorly adapted to the purpose to which we have been obliged to put them, and they must soon give way to better and more serviceable appliances It has not seemed wise to arrange now for new cases and tables; since enlarged experience in the new building may suggest some improvements which might be overlooked in any immediate attempt to furnish new things throughout. After a year's experience in the new quarters we shall know better what to ask the friends of the Department to provide. Meanwhile, it is our purpose to get along as we best may with the rather shabby and inconvenient outfit.

The apparatus supplied by Mr. H. H. Hunnewell and Mr. F. L. Ames is ample for all needs of research and illustration at present. The appliances have been enriched during the past year by a very full set of diagrams prepared with great care. In the study of Systematic Botany this addition will be found of much assistance. Our provision of dissecting and compound microscopes is now sufficiently large for even the very large classes in attendance, and these instruments can now be used under good conditions. The equipment of the Department in respect to apparatus leaves for the present very little to be desired. Among the recent accessions to the apparatus for illustration should be mentioned a large set of photographic slides provided by the generosity of a lady who has previously manifested her interest in the Department in a substantial manner. The set of slides will be largely augmented during the next winter.

The N. C. Nash Lecture-room will be finished some time early in the coming college year, but even in its unfinished condition will afford the teacher ample facilities for demonstration.

Mrs. Charles E. Ware and Miss Mary L. Ware authorised me this spring to conclude, upon terms satisfactory to them and to the artists, an arrangement by which for a term of years Harvard College claims

the entire output of Blaschka's glass models of flowers and plants. The invoice received in the winter proved to be of even greater excellence than the previous shipments which had received such praise. The collection will be placed in the long room adjoining the main Exhibition Hall.

The work of arranging the specimens illustrating Economic Botany will not be undertaken for the present. Under the advice of Mr. Agassiz, the Curator of the Museum of Comparative Zoölogy, this work will be deferred until my return from the tropics. The very thorough treatment of the specimens in glass bottles and tight cases will, we hope, preserve them from material injury until their exposition. It seems no longer wise to withhold a declaration of the policy which I advocate in regard to the Museum of Economic Botany. It is my wish to make the collection an authoritative cabinet of type-specimens, to be described in an illustrated series of studies. No such work exists at present except in valuable fragments found widely scattered through journals of botany, pharmacy, and technology. Upon this important work of coördinating results already published with those which have been reached in our Museum some of our advanced students have already entered, and these original investigations are the forerunners of what we hope will be a contribution to a neglected part of our field. For a fund adequate for this publication an appeal will be made at some future time. I advocate placing in the Exhibition-room itself specimens which shall convey to the general public clear notions in regard to the sources of the principal matters obtained from the vegetable kingdom. In the department of woods comparatively little will be done by us, for this attractive branch of illustration belongs to the Museum of the Arnold Arboretum, and can be touched only lightly in the University Museum. The presentation of illustrations of types of the great classes and the subordinate groups of plants has hitherto been the despair of curators of museums. But the great skill of the Blaschkas, father and son, has enabled us to undertake this presentation in an effective way. Therefore the types will be fully presented in the Ware Memorial Room, while in the contiguous Exhibition Hall we can display authoritative specimens illustrating the products from the plants of each type. In this manner, an interesting exposition of the scientific and the popular sides can be satisfactorily assured. Lastly, in procuring additions for further illustration of Economic Botany, the policy which has been found advantageous in the Garden will be consistently pursued. Exchanges will be undertaken only on the basis of transferring desiderata. We shall be glad to send to others specimens which they want and which we can spare in

return for specimens which we want; but we do not advise indiscriminate exchanges, which result so often in the accumulation in the hands of both parties of specimens which nobody desires and which it is nevertheless ungracious to throw away.

It was expected that the present report would contain engravings of the new rooms upon the occupation of which we enter with so much pleasure; but it is thought best to defer this until a later report. The sincere thanks of our students and their instructors are due to the numerous friends who have placed at the service of the University an addition to the Museum which carries far towards completion the comprehensive plan of the late Professor Agassiz.

In accordance with his promise, made in the last annual report, the Director at a meeting in early summer brought the needs of the Herbarium to the attention of the Garden Committee. Dr. Allen of New York and Mr. Kidder of Boston emphasized the Director's statements with so much effect that a generous amount of money was supplied for the present wants of the Herbarium. On every occasion when the coöperation of the Garden Committee has been asked for with regard to any part of the establishment, it has been cordially given. The Chairman, Henry Lee, Esq., and the members of the Overseers' Committee have aided not only by their contributions, but by their wise counsel.

GEORGE LINCOLN GOODALE, *Director.*

SEPTEMBER, 1890.

THE ARNOLD ARBORETUM.

TO THE PRESIDENT OF THE UNIVERSITY:

SIR, — I have the honor to submit the following report of the condition and progress of the Arnold Arboretum during the year ending August 31, 1890: —

The Park Commissioners of the city of Boston have made some progress during the year towards completing their driveways through the Arboretum; and a road connecting the drive between Centre and South Streets with the entrance at the corner of Bussey and Walter Streets has been sub-graded and the slopes roughly formed. This new road opens the most beautiful part of the Arboretum grounds, including the portion devoted to the cone-bearing trees. Many of the most important groups of these trees were planted several years ago, in advance of the building of the road, and arrangements are already

made to substantially finish planting the Pinetum during the coming year. The Commissioners have placed under contract the grading of another long section of road at the other end of the Arboretum This is to be sub-graded and the slopes made during the autumn and early winter of 1890; and there is now a fair prospect that the whole system of city roads will be sub-graded and perhaps opened to the public in the course of the next three or four years.

No planting has been done during the year. All the trees that could be planted advantageously were planted several years ago; and without additional graded road-slopes there has been no opportunity to continue this work. In future, however, now that this difficulty seems likely to be removed, the planting can be pushed on as rapidly as the resources of the Arboretum will permit and the principal collections, at least, of the most important trees placed in permanent position.

The various collections already in place have grown satisfactorily during the year; and, in the case of some of the groups, begin to show the effects of the careful manner in which the trees were planted. Much attention has been given to studying and improving the special collection of shrubs, to which some important additions have been made during the year. This collection is already suffering from the want of proper space for the individual development of the plants of several genera; and it is not evident how this collection, which is thought to be unsurpassed, can be adequately provided for in the future. At present it is the most complete and therefore the most valuable feature in the Arboretum.

Interchange of Plants and Seeds.

The interchange of plants and seeds with other botanical and horticultural establishments has been continued throughout the year. There were distributed 20,937 plants (including grafts and cuttings) and 810 packets of seeds, as follows: —

To all parts of the United States, 20,468 plants and 236 packets of seeds; to Canada, 36 packets of seeds; to different European countries, 469 plants and 452 packets of seeds; to Japan, 86 packets of seeds.

There have been received during the year 2047 plants and 382 packets of seeds. Among important contributions are plants and seeds from the Botanic Gardens at Kew, Paris, St. Petersburg, Tokio, and Sapparo, and plants from Ludwick Spathe of Rixdorf, Dr. A. Dieck of Zoeschen, Paul & Sons of Chesthunt, A. Waterer of Woking, Parsons & Co. of Flushing, Temple & Beard of Cambridge, and from many private gardens.

Herbarium and Museum.

The routine work of the Herbarium and Museum has been continued during the year. There have been added to the collection 2319 sheets of dry plants. The most important of these are a set (684 sheets) of the trees and shrubs cultivated in the gardens of southern France, prepared under the direction of Monsieur Charles Naudin, the director of the garden of the Villa Thuret at Antibes; a continuation of the set representing the plants of the Kew Arboretum and Chinese plants (in all, 487 sheets) from the Royal Gardens at Kew; a set of West Indian plants (648 sheets) from Baron H. F. Eggers of Copenhagen; plants of northern Mexico from Mr. C. G. Pringle, and of Lower California from Mr. T. S. Brandegee. Wood specimens to the number of 384 have been distributed during the year.

The first volume of "The Silva of North America," a work upon which Mr. Faxon and I have been engaged for many years, has been published during the year. It contains the descriptions of twenty genera and thirty-four species of North American trees, illustrated with fifty plates. Fifty-two numbers of "Garden and Forest," which must be considered the organ of the Arboretum, have been published during the year under my direction. The interesting new and little-known plants in the Arboretum collections are figured and described in its columns.

C. S. SARGENT, *Director*.

December 2, 1890.

THE CHEMICAL LABORATORY.

To the President of the University:

Sir, — During the past year there were no changes of any importance either in the courses or in the methods of teaching in this department of the University. All the work-rooms were crowded, and the resources of the Laboratory as well as the energy of the teachers were taxed to the utmost by the large number of students electing the Chemical courses. As the details in regard to these points were fully stated in the report of last year, it seems unnecessary to repeat them here. The need of ampler accommodations is more and more strongly felt.

For several years Chemistry has been one of the "advanced subjects" which may be offered by candidates for admission to College in place of purely literary requirements, and the number of candidates seeking admission from this direction has been rapidly increasing —

over fifty applying at the last entrance examinations. The "Laboratory examination" required in the subject has become not only a burden on the department, but also a troublesome feature in the general administration of the admission examinations, because it cannot be made to conform to the usual order of literary or mathematical work, and except at great expense could not be conducted with efficiency outside of the College laboratories. Hence there has been a manifest, although very possibly an unconscious, disposition on the part of the administration of the College to subordinate the Laboratory examination to a written examination on the same subject which may be held anywhere and superintended by officers who are not familiar with experimental methods. This tendency, the Director feels, should be strenuously resisted. It would end in substituting a worthless "cram" of an elementary text-book for experimental work and destroy the only value of the requisition.

As the writer has so often insisted, the importance of experimental science in a scheme of education depends solely on the circumstance that it offers a peculiar discipline which is especially adapted to the training of a certain class of minds unfitted from lack either of verbal memory or of critical perceptions to excel in literary studies, and in the statement of the requisition and in the corresponding undergraduate course designated as Chemistry *B* it has been the constant aim of the department to foster the peculiar discipline of the study and to subordinate as far as possible the acquisition of a mass of facts, however useful such knowledge might be or however valuable such a method of study in other relations.

With all our efforts to maintain an adequate test of scientific training at the extrance examinations, it has been very difficult to secure satisfactory teaching of science at the preparatory schools. Although in some quarters there is a manifest improvement from year to year, yet few of the teachers trained under literary methods fully appreciate the true spirit of scientific discipline. The ever-increasing demand for scientific education has led to the equipment of laboratories in many of the schools, and the new channels for admission to College have been eagerly sought; but it is not enough to substitute laboratory for class-room teaching if the methods of instruction are as mechanical as before. The perfunctory repetition of a series of experiments, if not directed with the true spirit, may readily become mere child's play and of no more value as a means of education than the turning of a crank. The great object should be to lead the student to observe for himself and to make correct inferences from observed facts, and yet in several schools which have become important feeders of the College under the new system a laboratory text-book is used, with

each experiment described in print on one side of the page and a leaf left blank opposite for the notes of the student. A more mechanical system, or one more fatal to any real scientific training, could not have been devised. Indeed, we can have no hope of any real progress in elementary scientific training until the text-book system with all its abuses is abolished, so far at least as concerns the scientific departments of our public schools. Far more than in literary subjects the success of scientific training depends on the spirit of the teacher and on his direct and active supervision of the work.

The great event of the year has been the completion of the new University Museum and the transfer to this essentially fire-proof building of our valuable collection of minerals and meteorites. The specimens were removed in wooden trays which are at present stacked in rooms of the Museum temporarily reserved for storage, and it will require several months to rearrange the collection in the large Exhibition Hall. The building, as is not unusual in such cases, has cost more than was expected, and all the money given for the purpose — as stated in detail in the report of last year — has been expended in the construction. In addition to this, however, a sum of thirty-one hundred dollars has already been contributed towards the furnishing and equipment of the new Museum: —

Mrs. D. H. Hayden and Miss Ann Blake	$2000
Edward Austin, Esq.	500
William Austin Wadsworth, Esq.	300
Mrs. G. L. Pratt and Miss Pratt	200
F. O. French, Esq.	100
	$3100

The liberal gift of Mrs. Hayden and Miss Blake was made in memory of their late brother, Stanton Blake, who with his usual benevolent zeal espoused from its first inception the project for the new Museum and was active in soliciting subscriptions in its behalf on the very eve of his lamented death.

Two thousand dollars more are required to complete the equipment according to the original design, and with less we cannot provide for a proper and permanent classification of our material. Indeed, should we begin to arrange our collection provisionally on a less liberal basis we should be compelled to do the work over again in a few years at a cost of time and labor far exceeding the expenditure now required to provide the additional accommodation which will suffice to carry out the original plan.

We do not expect to exhibit in the new Museum any larger number of specimens than were shown in the old Hall. Such a collection

might be expanded indefinitely, but its educational value would not thereby be increased. On the contrary, beyond a certain limited expansion it would be diminished, and a sufficiently extended series of specimens to fairly illustrate the variety, extent, and beauty of the mineral kingdom is all that need ever be exhibited under glass to the general public or even to the student unless a specialist.

This is the idea which will be followed in the new arrangement, with the expectation that the plan will be reasonably permanent. Specimens illustrating less striking relations and affiliations of the mineral species will be classified in trays protected in dust-tight lockers beneath the show-cases, where they will be readily accessible to the special student, and these trays will have four times the capacity of the cases. The cost of the lockers, amounting to about sixteen hundred dollars, has yet to be provided for.

As the most pressing need of the department for the moment was room for the elementary teaching of Mineralogy, we have begun in the equipment of the Museum with the furnishing of the Mineralogical laboratories and lecture room, and this has been thoroughly done in the best manner we could devise. These rooms are now in full use and afford ample accommodations for a class of one hundred students. Unfortunately we have not yet the means of equipping the assay laboratory in the basement, for which at least three hundred dollars additional are required; and this amount, together with the sixteen hundred dollars just mentioned — besides a few small items — make up the two thousand dollars needed, as above stated, to carry out the original plan. This deficiency may make it necessary to give up for the present year the course in Assaying promised in the College Announcement.

Since the room formerly occupied by the mineral collection has been vacated, amounting to about one fourth of the floor-space in Boylston Hall, the question — referred to in the last report — how best to adapt this space to the uses of the Chemical department, presses for an immediate decision. The needs are very urgent; for, while the classes in Mineralogy have now abundant room in the new Museum, the Chemical laboratories are already crowded nearly to their utmost capacity; and, although by our system of dividing the lockers while using the same desk for different students on alternate days, slightly larger elementary classes might be accommodated, we have not a single place fitted for an advanced student unoccupied. Moreover, our advanced laboratories, although fitted with all the necessary appliances for work, compare unfavorably with those of recent construction, and it is earnestly to be hoped that in making the proposed changes no expense will be spared that is necessary to

furnish the best accommodation for advanced students which the construction of the building will permit.

The Summer School was conducted last year with great success under the direction of Dr. T. W. Richards, aided by a corps of four competent assistants. As in previous years most of the students were teachers — some of long experience — coming from all parts of the United States, and many from great distances. The courses opened on July 7 and closed on August 16. Thirty-nine men and eleven women were in attendance during these six weeks, most of them devoting from eight to ten hours each day to the work. On August 9 an excursion was made to Newport, R. I., where the Director received the class at his summer home, and had the opportunity of ascertaining the motives, especially of the mature teachers, in seeking this summer instruction and how far their needs were met by the courses actually given. The opinion was confirmed that the chief value of the Summer Courses in Chemistry is in the opportunity they offer actual teachers to become familiar with scientific methods and imbued with the spirit of scientific training. It was evident that the University was by this means doing an excellent work and exerting an important influence, while at the same time its large appliances for scientific teaching were becoming more widely known.

It is a mistake, however, to suppose that these summer courses are the equivalent of the corresponding college courses, and they would lose a great part of their special value to teachers if they were. Even when the ground covered is nearly the same, not only is six weeks' hurried work no equivalent for a year of quiet study, but from the nature of the case the teaching cannot be so thorough or the supervision so close. An experienced teacher is in the position to gain the most from such a rapid review, and as a rule he cannot afford to devote more time to what is to him simply a new feature of a familiar profession. He gains just the hints which he needs from a course which is wholly insufficient for the necessarily slow training of an immature student. The writer has therefore always opposed all propositions to count these courses as a part of the regular college work or to assign them any credit on the college scales.

During the past year chemical investigation has been prosecuted in the Laboratory with the usual zeal, although from many unavoidable causes the actual fruit of the work was not so great as during the previous twelve months. Professor Jackson has studied with his private assistant, W. H. Warren, the action of sodic alcoholates on tribromdinitrobenzol and tribromtrinitrobenzol. The action takes place in four different ways: (1) By replacing the three atoms of bromine by three of the alcohol oxyradicals; (2) by replacing only

two of the atoms of bromine in this way, leaving the third unaltered; (3) by replacing two of the atoms of bromine as in (2), while the third is replaced by hydrogen; (4) by replacing one or two of the nitro groups by the alcohol oxyradicals. The results of this work were published this summer.

With his private assistant, W. H. Bentley, Professor Jackson studied the products of the action of nitric acid on bromtrinitrophenylmalonic ester. These were found to be the nitrite of this body, which underwent a most striking decomposition when heated, and the bromtrinitrophenyltartronic ester. Several derivatives of both substances were studied, especially the anilido compounds and salts of the anilidotrinitrophenyltartronic ester, and also some allied substances. But the work has not yet been published, since two forms of the anilidotrinitrophenyltartronic ester were discovered late in the year, and as they seem to belong to none of the explained classes of isomers, there is still need of more extended and careful study.

Professor Hill and W. S. Hendrixson continued the study of the chlorsulphopyromucic acids and are now ready to publish the results of their investigations. They also studied the action of oxidizing agents upon methylpyromucic acid and definitely established its relations to pyromucic acid.

W. L. Jennings continued, under the direction of Professor Hill, the study of the higher boiling portions of the oil obtained in the distillation of wood at low temperatures. He also began a systematic study of methyl pyromucic acid and tried the action of sulphuric acid upon pyromucic acid under varied conditions with the hope of establishing the formation of isomeric products.

Professor Hill, with H. N. Herman, studied the reaction which takes place when the substituted pyromucic acids are heated with strong mineral acids. They showed that a number of bodies may thus be formed which are perfectly analogous to the substance obtained in a similar way from the x-dichlorpyromucic acid by Professor Hill and Dr. L. S. Jackson. The structure of these bodies is now under investigation.

The work on the revision of the atomic weights of the chemical elements, which was undertaken by the Director as early as 1877, was continued during the past year with important results. The determination of an atomic weight is primarily a process of quantitative chemical analysis, which simply gives as its direct result the proportion by weight in which two elementary substances unite with each other to form a chemical compound. The analytical methods employed are as a rule very simple, but must be capable of great refinement; and the

difficulty of fixing with the highest accuracy the value sought depends on the circumstance that it is so very hard to secure absolute purity of materials or to prevent the formation of secondary products in the chemical processes employed. What we observe in any case is a combining ratio, and we thus deduce from an accurately determined atomic weight one that is unknown or less precisely fixed.

The theoretical standard of reference in our system of atomic weights may be the atom of hydrogen assumed to be unity, or — which many chemists prefer — the atom of oxygen assumed to be sixteen; but, as appears from the above, the actual standard of reference in any case must be the atom of that element with which the elementary substance in question forms the compound best fitted to give accurate results. Our choice is usually exceedingly limited.

Of the three substances concerned in the determination of an atomic weight — namely, two elementary substances and the compound formed by their union — we must be able to weigh, either directly or indirectly, at least two with absolute accuracy, and we must know not only that the weights taken represent absolutely pure material, but also that our processes of analysis yield no secondary products, and we have constantly to guard against any trace of hygroscopic moisture or the smallest particles of inclusions or admixtures of any kind. So difficult is it to secure the necessary conditions that seldom more than one compound of a given element — sometimes no compound as yet known — is capable of yielding results of the highest order of accuracy. Hence we are often forced to take as our standard of reference the one element which yields the one available compound, and thus it may come to pass that our knowledge of the relations of an element to such a standard may be more accurate than our knowledge of the relations of the standard to the more fundamental units of the system.

One of the most accurate relations which has been determined, and one in regard to which all experimenters are essentially agreed, is that of silver to bromine. Both of these elementary substances can be prepared in the highest degree of purity; a compound of the two can be formed of perfectly uniform constitution, and so as to exclude the possibility of any loss of material, and finally two of the three substances involved — namely, silver and bromide of silver — are so invariable under atmospheric agents that they can be weighed with absolute precision. The arithmetical mean of all the results that have been obtained by the most skilful experimenters gives for the value of the ratio of silver to bromine 108.00; 80.007; and this may be taken as 108.00; 80.00 within one ten-thousandth of either value, the highest degree of accuracy that we have been able to

reach in such analytical work. As this result may be regarded as final, except so far as improved methods may serve to further develop the decimal places, it seemed highly desirable to group as many as possible of the atomic weights about this ratio by referring them to silver or bromine as fundamental standards. In this way an ever-increasing number of secondary standards could be established, all rigorously related, and the circle slowly widened until it comprised all known elementary substances.

The bromides of the elements are a remarkably stable class of compounds, and the use of these bodies in the investigation offered this very great advantage, that in many cases we could weigh not only the bromide analyzed with one or both of its constituents, but also, besides the bromide of silver formed in the process, the exact amount of metallic silver required. Thus we could establish the relation of the atomic weight sought to those both of silver and bromine at the same time; each experiment in fact involving a new determination of the relation of silver to bromine and exhibiting its credentials by the correspondence of the value thus obtained with the fundamental value so often and so absolutely confirmed. The writer was led to the adoption of this general method during his extended investigation of the atomic weight of antimony that has been so long in question, and he was able to prove solely on the basis of his own work that

$$Ag : Br : Sb = 108.00 : 80.00 : 120.00.$$

Here all three terms are deduced from the results of one and the same set of experiments; and since the third term involves the other two, and the ratio of the first two is identical with a value so well established, the evidence of the correctness of the third term is overwhelming.

On the same principle it was subsequently shown by the work of Dr. O. W. Huntington in this Laboratory on the analysis of bromide of cadmium that

$$Ag : Br : Cd = 108.00 : 80.00 : 112.31.$$

During the past year Dr. T. W. Richards has brought the atomic weight of copper into the group of accurately-determined values thus related to the same fundamental constants. Unfortunately, bromide of copper is not only a very hygroscopic substance, but also when moist absorbs oxygen from the air with the formation of an oxybromide, so that it was not found practicable to weigh the material itself without risk of change. It was possible, however, to repeatedly crystallize the body out of contact with the air and prepare a solution of this pure material. Dr. Richards, moreover. found in methyl orange an exceedingly delicate indicator, by which the perfect neu-

trality of the solution could be verified, and in such a neutral solution copper and bromine must be present in atomic proportions. The weight of both these elements could be determined with the highest precision — the copper by electrolysis and the bromine by precipitation as bromide of silver. Furthermore, by weighing the silver used, as well as the bromide of silver formed, he deduced as the mean value of a large number of determinations that

$$Ag : Br : Cu = 108.00 : 80.00 : 63.64,$$

as before, to within one ten-thousandth part of either value.

As is well known, a strip of metallic copper immersed in a solution of nitrate of silver replaces the silver, which separates from the solution in a condition suitable for accurate weighing, — while the copper, if not in excess, completely dissolves. If the process were, as it is usually regarded, a simple replacement of silver by copper, the relative weights of the two metals involved would give at once the ratio of their atomic weights to each other. In fact, such a simple replacement is the chief phase of the process. But at ordinary temperatures, in consequence of the tendency of copper to form basic salts, the primary reaction is always accompanied by a secondary change, which, although usually very inconsiderable, is sufficient to disturb the exact proportion we are seeking to find. More copper dissolves than is required to precipitate the silver, and the breaking up of a portion of the nitric acid salt is indicated by the evolution of nitrous fumes. Three years ago Dr. Richards carefully studied this reaction and found that by maintaining the temperature below the freezing point of water the secondary change could be wholly prevented, and by regulating the temperature as thus indicated he was able to employ the process in a direct determination of the ratio between the atomic weights of silver and copper. Using the purest materials that could be prepared, he obtained as the result

$$Ag : Cu = 108.00 : 63.64.$$

Thus the results obtained this year exactly confirm those of 1887. Between the three quantities, Ag, Br, and Cu, the ratio has been determined in every possible combination and all the results exactly agree. Further investigations on the same general plan are now in progress at this Laboratory.

During the past year large accessions have been made to the Mineralogical collection. The year has been remarkable for the number of meteoric masses which have fallen or been discovered in the United States. Two of the largest of these masses have been secured for our Museum, and sections of fragments of most of the others, of sufficient size to illustrate their nature and structure, have been ob-

tained. Our collection of these remarkable bodies is now one of the largest in the world. Several suites of very interesting minerals have also been added to the cabinet, among which a set of magnificent specimens of aragonite from Sicily deserves special notice. The labor attending the removal of the collection has been necessarily very great, and has chiefly devolved on Dr. Huntington, whose time has been largely occupied with the important details.

There have been only two changes in the corps of Laboratory teachers and assistants during the year. Mr. Walter Scott Hendrixson left us at the close of the Summer School to accept the professorship in the college at Grinnell, Iowa, and Mr. Henry Newell Herman of the last graduating class has been added to our body as assistant in organic chemistry.

JOSIAH P. COOKE, *Director.*

THE JEFFERSON PHYSICAL LABORATORY.

To the President of the University:

Sir, — The number of students registered in the Electives in Physics during the year 1889–90 was 234. The number of those who continued in the courses during the year was 218. The students were distributed among the Electives in the following manner:

Physics *B*	89
" *C*	53
" 1	29
" 3	17
" 4	12
" 5	0
" 6	5
" 7	7
" 8	4
" 20*a*	2
Total	218

The Summer School in Laboratory Physics, covering essentially the ground of Physics *B*, was conducted by Mr. Joseph Y. Bergen. Twenty-one students attended this school.

A higher school, substantially the equivalent of Physics *C*, was established and placed under the charge of Mr. W. C. Sabine, Assistant in Physics. Ten students, principally teachers, completed the work of the course. These teachers came from a wide geographical area. One of them is at present teaching Laboratory Physics according to the Harvard method in Denver, Colorado. These schools are

undoubtedly useful in extending the knowledge of the laboratory methods which characterize the present course of instruction in Physics in the University. Since the term has begun many letters have been received containing enquiries in regard to laboratory appliances and methods.

In order to systematize as much as possible the instruction in Physics *C*, which is the higher elementary laboratory course, and is the equivalent of the maximum requisition in Physics for admission to College, the Director prepared a laboratory manual which is now being used in this course. The demand for this pamphlet and also for that prepared by Professor Hall for Physics *B* shows great interest throughout the country in the laboratory method of instruction in Physics. This year 228 applicants for admission to College presented Laboratory Physics equivalent to Course *B* instead of the text-book requisitions.

The increase in the number of students offering experimental Physics for admission to College is very gratifying. This result is due to the careful and conscientious work of Professor Hall, who, by well-considered experiments and suitable apparatus, has made the laboratory method in Physics an important element in the preparatory schools.

Eight applicants for admission offered this year the maximum requisition. It is probable that the number who present this requisition will increase; for several schools, including Exeter, are now prepared to give the higher laboratory course. An examination of the number of students who take the electives in Physics shows that the number of students who elect the elementary laboratory courses is increasing. The gain in the higher courses, however, is slight. In these, it must be remembered that the Differential Calculus is required. This accounts, in part, for the small number in these courses. There should, however, be several graduate students pursuing higher scientific work in the Laboratory. During the past year there were two graduates acting as assistants, who were occupied on scientific investigations. It is probable that the number of graduate students who are fitted to pursue original scientific work will always be small. This is the case even in the principal foreign universities.

The Professors and Assistants in the Physical Department of Harvard University have been much occupied during the past two years in perfecting laboratory methods for elementary students. That the work done in making the elementary laboratory courses thorough and systematic is important, cannot fail to impress the visitor who witnesses one of the exercises in the Laboratory.

The following popular lectures were delivered to the Freshmen class during the second half-year: —

Sound, with especial reference to the Telephone and Phonograph. Professor Trowbridge.
Light, with especial reference to Photography. Professor Trowbridge.
Light, in its relation to Spectrum Analysis. " "
Electromagnetism. " "
Prime Motors. Professor Hall.
Steam Engine. " "
Dynamo Machines. " "
Electric Lighting and Electric Railways. Professor Hall.

These lectures were attended by 300 to 400 students. In June last the Faculty voted to abolish the examinations upon these lectures and to make the attendance upon them wholly voluntary in future.

Advanced Work and Investigation.

Professor Trowbridge, together with Mr. W. C. Sabine, Assistant in Physics, was occupied during the year with an investigation on Electrical Waves in Air. The experimental part of the investigation was carried on at night in order to avoid interruptions and to secure the necessary conditions of darkness for the photographic method which was employed. Large air condensers were used for the first time in the study of electrical oscillations in air; and a marked periodicity in the phenomena was discovered. The great sensitiveness of the silver salts to light was shown in a striking manner in this investigation — since there was no difficulty in securing a photograph of an electric spark which lasted only three millionths of a second. Professor Trowbridge also investigated by means of Spectrum Analysis the effect of electrical waves on the motion of molecules of metals. It was found that the electrical waves in their oscillations do not convey the molecules of metals from terminal to terminal between which the oscillations take place; but merely agitate them so that they emit light-waves. Papers describing the results of these investigations were published in the Proceedings of the American Academy of Arts and Sciences, and also in the London Philosophical Magazine.

Mr. C. A. Rich, Assistant in Physics, has been occupied during the past year in studying the distribution of alternating currents of electricity upon the surface of hollow conductors. When the reversals in direction of strong currents amount in number to 500 per second the electricity penetrates to a little more than one twenty-fifth of an inch into the conductor. This investigation touches the important, practical question of distributing electrical energy by means of hollow conductors instead of solid ones.

Mr. Charles Nutt, working under the direction of Professor B. O. Peirce, completed a paper upon the manufacture of electrical condensers. The importance of such condensers in electrical measurements is very great, especially in all questions relating to the transmission of speech over great distances by means of electricity. Mr. Nutt shows how reliable condensers can be constructed.

Mr. D. W. Shea, holder of the Tyndall Scholarship, is continuing his work on the velocity of light in magnetic fields under Professor Kundt at the University of Berlin. Mr. Shea was engaged for two years on this subject in the Jefferson Physical Laboratory.

Professor B. O. Peirce has completed during the year an investigation in Mathematical Physics, the results of which will be shortly published.

Professor Peirce and Dr. Willson have studied various methods of determining battery resistance. The earlier results were embodied in a note in the American Journal of Science XXXVIII., December, 1889. Later observations made with much greater care have not yet been reduced, but will be published during the ensuing year.

Professor E. H. Hall has been engaged in studying the periodic changes of temperature in the walls of the cylinder of a Steam Engine. This investigation will be continued during the present winter. A study of the conductibility for heat of nickel and cast iron was made in connection with this investigation, and the results will soon be ready for publication.

In studying the magnetic field in the Laboratory, Dr. R. W. Willson repeated the observations made in 1887, and referred to in the report of the Director of the Laboratory for that year. In addition to this he has made a much more careful survey of certain parts of the building, with a view to ascertain the magnetic effect due to the brick piers and walls. The results of this investigation are published in the American Journal of Science, Vol. XXXIX., pp. 87–93, pp. 456–471.

Several investigations in addition to those mentioned in this report were contemplated during the year; but the instrumental difficulties were found to be too great to engage in them. The scientific work of the Laboratory has been done during hours snatched from teaching and in the face of mechanical difficulties to which the Director referred in his last report. Having the importance of increasing the reputation of the University for high learning clearly before him, he cannot emphasize too strongly the truth that a physical laboratory needs a mechanician and a suitable workshop.

The Visiting Committee of the Laboratory in a report to the Board of Overseers, April 23, 1890, recognized fully this pressing need of the Laboratory and concluded their report as follows: —

"We are strongly of the opinion that the acceptance of the magnificent Laboratory building as a gift carries with it an implied trust, on the part of the University, that Science shall receive from it the fruits of original research it is so well fitted to yield."

Through the efforts of Mr. Francis Blake, of the Visiting Committee of the Laboratory, an endeavor has been made to raise a fund of one hundred thousand dollars to provide means for Physical Research in this University.

Contributions to this fund have been received as follows: —

Francis Blake	$1,000	Frederick L. Ames	1,000
William Endicott, jr.	2,000	George Putnam	250
American Bell Telephone Co., through John E. Hudson, President	1,000	John E. Hudson	250
		W. H. Forbes	250
Henry M. Whitney	1,000	E. D. Leavitt	250
			$7,000

The Laboratory has also received as a gift from the Thompson-Houston Co., of Lynn, a three horse power electrical motor with complete attachments.

JOHN TROWBRIDGE, *Director.*

THE OBSERVATORY.

To the President of the University:

Sir, — The urgent need at the Observatory of a fire-proof building has been pointed out in several successive annual reports. The last year has brought to the Observatory about nine thousand photographic plates, — some taken in Peru, some in California, and some in Cambridge. The total number of these plates is about twenty-seven thousand. All of them are stored in wooden buildings, where they might be destroyed by fire in a few minutes. They represent nearly the entire sky from the north to the south pole, the greater portion being covered several times, and they show not only the positions of the stars, but also their spectra. A large part of the charts and nearly all of the spectra are unique and have not been photographed elsewhere. Accordingly, in case of fire, future astronomers wishing to study changes in the stars would be obliged to begin with 1891 instead of being able to carry their work back in many cases to 1885. Even the weight of the plates is becoming a source of danger to the main building of the Observatory, as its floors are not constructed to carry heavy loads. Besides the photographs, a large amount of original manuscript, representing observations

extending over a dozen years, is liable to destruction. This danger would be avoided by publication in the case of the manuscripts, but only partially in the case of the photographs. Accordingly excellent progress in publishing has been made during the last two years. But even here we are stopped by the expense and are obliged to delay until the interest of the publishing funds has accumulated. Otherwise, several additional volumes could be at once undertaken. The library is one of the most extensive and complete in astronomical works in the United States, and if destroyed could not be easily replaced. Finally, the instruments are delicate and valuable, although representing a small sum compared with the photographs and manuscripts.

In the last annual report reference was made to the loss sustained by the Observatory of one of its oldest friends, Mr. J. I. Bowditch. Since then I have learned that to his many gifts to the Observatory he has added another, — a legacy of twenty-five hundred dollars.

Observatory Instruments.

East Equatorial. — The observations made during the year are as follows: 21 eclipses of Jupiter's satellites have been photometrically observed, making in all 451 since 1877. The following comets have been observed for position: 1889 I. on 1 date; 1889 V. on 31, comprising 34 observations; companion to 1889 V. on 3; 1889 VI. on 7; 1890 I. on 3; the comet discovered by Brooks, March 19, on 12 dates; the comet discovered by Coggia, July 18, on 4 dates; the comet discovered by Denning, July 23, on 2 dates; and D'Arrest's comet, rediscovered by Barnard on October 6, on 1 date. The systematic observation of 17 circumpolar variables has been continued, as in the previous year, and one recently discovered by photography has also been added to the list. Each star is observed about once in two weeks by the Argelander method and by direct estimation of magnitudes. The total number of these observations during the last year is 381 relative estimates by the Argelander method and also the same number of estimates of magnitude, with the large telescope. Relative estimates of these variables were obtained at the same time with the finder, if the stars were visible in it; 37 series of relative estimates of comparison stars for these variables have also been made, and 10 series of photometric measurements of the same stars with the wedge photometer. The wedge photometer has likewise been used in the observation of 22 series of zones from the Durchmusterung, comprising 838 stars.

In order to facilitate the decision of questions relating to the identity of stars observed with the meridian circle in the zone $+50°$ to

+55°, 70 observations of the relative positions of stars have been made with the Equatorial. In addition to the above, observations have been made of several other miscellaneous objects. These observations, except those of Jupiter's satellites, have been made by Mr. Wendell.

Meridian Circle. — The reduction of the observations made with this instrument by Professor William A. Rogers continues under his supervision. The printing of the zone catalogue, as shown under the head of Publications, is far advanced. The manuscript of the volume which is to contain the separate results of previous observations of the stars of the Harvard College zone reduced to 1875.0, with a discussion of the systematic errors involved in the reduction to the system of the Astronomische Gesellschaft of the various catalogues employed, together with the resulting proper motions, is ready for the printer. The time required in preparing this volume has allowed little progress to be made in the reduction of the observations made from 1879 to 1883.

The observation of the southern zone comprising the declinations from —9° 50′ to —14° 10′ has been continued throughout the year by Professor Searle, assisted by Mr. Dunne. The number of nights of observation is 111; the total number of observations is 6955, distributed as follows: 214 relating to circumpolar stars, 777 to fundamental stars, 5768 to zone stars, 70 to variable stars, and 126 to stars incidentally observed. Continuous progress has been made in the reductions, and forms have been arranged for the publication of the observations. A few series of observations have been entered in these forms.

West Equatorial. — The six-inch equatorial mounted in the West Dome has been used in testing the new method proposed by Professor Michelson for measuring double stars by means of diffraction images. Mr. W. M. Reed has also used it in an investigation of the light curves of variables of long period. A large part of the work has been done during the last month, but in all 218 observations have been obtained on 40 nights.

Henry Draper Memorial.

During the past year 1309 photographs have been taken with the Bache telescope at the station near Chosica in Peru. Nearly all of them relate to the region south of —20°. Photographic charts having an exposure of ten minutes and showing all stars to the twelfth magnitude have been obtained, comprising nearly the entire region. Charts with an exposure of sixty minutes, showing stars to the four-

teenth magnitude, cover about one half of the region. Spectra with an exposure of ten minutes, including stars of the sixth magnitude, cover nearly the entire region; and spectra with an exposure of sixty minutes, including stars of the eighth magnitude, cover about one half of the same region.

An instrument like the Bache telescope, having a photographic doublet for an objective, is capable of collecting so large an amount of useful material that Mrs. Draper decided to have constructed a second instrument of the same dimensions. This was accordingly mounted on the Observatory grounds and has been kept at work every clear night until daybreak since September 27, 1889. 2157 photographs have so far been taken, including charts with exposures of ten minutes, covering the sky north of —20°. By placing over the objective a prism of small angle, the spectra of very faint stars have been obtained even when they were as faint as the tenth magnitude. Even red stars can be photographed in this way, and many objects having peculiar spectra now come within the reach of photography. Thus twenty-nine spectra of the fourth type have been obtained of which six, namely, DM. +14° 2048, A. G. C. 16937, 18947, 20554, 29232, and 30526 (π, Gruis), are new. The variable star U Hydrae belongs to this class. Spectra of fifteen planetary nebulae have been photographed. The hydrogen line, F, has been shown to be bright in eight stars, δ Centauri, μ Centauri, η Centauri, H. P. 1124, 3747, A. G. C. 17717, 18859, and χ Ophiuchi; the last has also other bright lines. Photographs have been obtained of all of the stars known to belong to that remarkable class discovered by Rayet, in which the spectrum consists mainly of bright lines. They number twenty-eight, and thirteen of them have been discovered in the present investigation, three during the past year. Their photographic spectra generally resemble closely those of the planetary nebulae. The hydrogen lines are shown to be bright in thirty variable stars of long period, namely: R Andromedae, o Ceti, U Ceti, R Tauri, R Aurigae, U Orionis, R Lyncis, L_2 Puppis, R Carinae, S Hydrae, R Leonis, R Ursae Majoris, R Corvi, T Ursae Majoris, R Virginis, S Ursae Majoris, U Virginis, R Hydrae, S Virginis, R Camelopardalis, R Bootis, S Coronae, U Herculis, R Draconis, R Ophiuchi, T Herculis, χ Cygni, T Cephei, R Aquarii, and R Cassiopeiae. This peculiarity of the variable stars furnishes a means of discovering them. Seven new variable stars have been found in this way, namely: DM. +48° 2942, DM. +33° 470, A. G. C. 18770, A. G. C. 22855, and the stars whose approximate positions for 1900 are in R. A. $1^{h.}$ $55.1^{m.}$, Dec. +56° 15′, R. A. $4^{h.}$ $37.1^{m.}$, Dec. —38° 26′, and R. A. $20^{h.}$ $9.4^{m.}$, Dec. —39° 29′.

The photographic charts mentioned above generally permitted the variability of these objects to be confirmed at once without waiting for confirmation visually. Every year, by the accumulation of additional photographs, this can be done more readily. Besides these stars about forty other stars have been suspected of variability owing to their spectra, and photographs of the regions containing them are taken every few days. A careful examination is made by Mrs. Fleming of all the photographs taken with the eight-inch telescopes in Cambridge and Peru, and has led to the discovery of about a hundred new third-type stars besides the objects named above. Mrs. Fleming has also had charge of the computation involved in Volumes XXVI. and XXVII. described below, and has prepared a large part of them for the press.

The detailed study of the spectra of the brighter stars with the eleven-inch telescope has been continued. Photographs have now been obtained, 845 during the past year, of nearly all the stars visible in this latitude and sufficiently bright. A beginning has been made of the description of these spectra. The most interesting result has been the discovery by Miss Maury of a second star, β Aurigae, which is shown by the doubling of the lines in its spectrum at regular intervals to be a close binary. The period of revolution in this case is very nearly four days. 78 photographs have been obtained of the spectrum of this star, and 89 of ζ Ursae Majoris. Two of the large prisms have also been attached to the fifteen-inch equatorial, and 143 photographs of the spectrum of ζ Ursae Majoris and 26 of β Aurigae have been taken with this instrument during the morning hours after its use for visual purposes is over. One photograph of σ Herculis seemed to show that this star also was double, but it has not been confirmed, although numerous additional photographs have been secured. Some interesting photographs have been obtained of the spectrum of several metals in the Bunsen flame. A photographic determination of the position of the pole of the heavens was made by Mr. R. D. Upham with the fifteen-inch Draper reflector. This apparently furnishes a means of measuring precession and nutation directly.

Boyden Fund.

Work under this fund has been continued at three places: Harvard College Observatory, Wilson's Peak in Southern California, and Chosica in Peru. Professor William H. Pickering took immediate charge of the work at the Observatory. Much time was devoted to visual observations of the colors and markings of the planet Mars with the twelve-inch telescope. A number of the so-called canals were recognized, but only one of them was distinctly seen to be double.

The best methods of photographic enlargement of astronomical objects have also been studied. Investigations, founded on observations made here and elsewhere, have been conducted with regard — first, to the meteorology of the globe, with particular reference to cloudiness and other phenomena affecting the choice of astronomical stations; secondly, to the fundamental principles of astronomical photography; thirdly, to the great nebulous region comprising a large part of the constellation Orion; fourthly, to the best form of standard light; and finally to other details of quantitative photometric work. As will be seen from the list of publications, portions of these investigations have appeared in various periodicals. Instruments and buildings have been planned and largely constructed for future use at Arequipa, Peru.

The station at Wilson's Peak was kept in operation until August, when the telescope was dismounted and sent to Cambridge to be transmitted to Peru. The advantages of the climate of Wilson's Peak are less marked than was anticipated; still, they have been sufficient to justify an attempt to purchase a suitable site there for a more permanent station. This attempt has not yet succeeded owing to uncertainties of title and other difficulties. If it should fail, other equally good locations in the same region can be secured. The photographs taken at Wilson's Peak have largely represented the Moon and the planets, particularly Mars, the more conspicuous permanent markings of this planet having been successfully photographed. An important accession to the white spot surrounding the southern pole was found by the photographs to have occurred between the nights of April 9 and 10. One of the most interesting discoveries has been that of the immense extent of the great nebulous region of Orion; many interesting photographs of double stars and clusters have also been obtained.

Good progress was made at the station near Chosica in Peru, maintained by the Draper and Boyden departments conjointly, until the approach of the cloudy season. The clouds gradually rose higher and higher until they covered the observatory. Accordingly, in November, 1889, the Messrs. Bailey visited various points along the coast, going as far south as Valparaiso, and passing some time in Pampa Central in the desert of Atacama, one of the driest points on the surface of the earth. Their observations led to the conclusion that no better place could be found than Arequipa, situated on the Mollendo railway, at an elevation of about eight thousand feet. It did not seem best to make the change until the clear season was over. They accordingly returned to Chosica and resumed work there until October, 1890, when the instruments were dismounted, and it is

expected that observations will be continued early in November at Arequipa.

The observations of the southern stars with the meridian photometer are now approaching completion. 110 series, comprising 13,836 stars (including duplicates), have been observed. The number of photometric settings is 55,344.

Valuable aid was rendered to the expedition by various residents in Peru, especially by Hon. John Hicks, United States Minister to Peru, and by Señor J. L. de Romaña, of Arequipa, under whose supervision a very instructive series of meteorological observations was carried on at four stations: Mollendo, at the sea level; Arequipa, at the elevation of 7500 feet; Vincocaya, at the elevation of 14,600 feet; and Puno, at the elevation of 12,500 feet.

The Bruce Photographic Telescope.

The disks of glass for the lenses of this instrument have not yet been received. The disk for the prism, which is twenty-five inches in diameter and three inches thick, arrived safely. It appears to be unusually free from defects and nearly colorless. The important gift by Miss Bruce of six thousand dollars, to be distributed among astronomers of all nations, should be mentioned here. It furnishes an example of using money so as to secure the greatest scientific return, which, it is hoped, will find many imitators.

Miscellaneous.

Library. — The library of the Observatory has been increased during the year by the addition of 311 volumes and 856 pamphlets. The total number of volumes and pamphlets on November 1, 1890, were respectively 6767 and 6891.

Time Service. — The standard time signals have been sent mainly by the Bond clock No. 394. The errors have been abnormally large this year. Their average at the time of observing star transits has been 0.42, the average interval between determinations being 2.4 days. The average error at 10 A.M. has been 0.37, the number of clock comparisons being about 700. The average change in the daily rate from each day to the next has been 0.38. On July 25, however, the error was uncertain for several hours on account of a defective performance of the Ballou clock No. 103, which was then sending the signals; and on February 19 no signals were sent on account of damage to the transmitting apparatus by lightning on the previous evening. A line following a new route near Harvard Square has improved the transmission of the signals.

The Boston Time Ball was dropped on 286 week days automatically by telegraph at noon. On two other occasions it started prematurely, but was immediately rehoisted, as a signal of incorrect dropping, and then slowly lowered.

Telegraphic Announcements. — The distribution of telegraphic announcements of discovery has been continued under the management of Mr. Ritchie. During the year telegrams concerning the discovery of eleven asteroids and five comets, and others relating to three orbits and to two positions of comets, have been sent out, requiring in all 278 telegrams and 14 cable messages.

Publications. — The printing of the zone catalogue of stars between the declinations $+55°\ 10'$ and $+49°\ 50'$ has proceeded as far as the right ascension 17^h, and, at the present rate of progress, should be finished in about six weeks. This catalogue forms the chief part of Volume XV., Part II., of the Annals of the Observatory. Volume XVIII. was completed during the year by the publication and distribution of its final section, No. X. This contains a discussion of meridian circle observations of stars near the south pole. The first portion of Volume XIX., Part II., is in type. It consists of a discussion of the zodiacal light by means of the observations made here during the last fifty years. Volume XXI., Part I., and Volume XXII., mentioned last year as nearly complete, were published during the year. These works contain the observations of the New England Meteorological Society for 1888 and the observations made on Pike's Peak by the United States Signal Service, 1874 to 1888. Volume XXI., Part II., will be published immediately. It contains the observations of the New England Meteorological Society for 1889, with essays by officers of the Society on climate and sea breezes. Of Volume XXIII., Part I., 121 pages are in type. This part contains a description of the observations with the meridian photometer in the years 1882 to 1888, inclusive. The printing of Volume XXIV. is completed. It contains the determinations obtained with the large meridian photometer of the brightness of stars from the Durchmusterung, and of a considerable number of miscellaneous stars. The total number of stars measured in this work is 20,982. Volume XXV. is not yet undertaken. Volume XXVI., Part I., is in type to page 138. It contains a description and discussion of the observations made with the Bache telescope during the years 1885 to 1889. The printing of Volume XXVII. is completed. It forms part of the Henry Draper Memorial, and contains a catalogue of the spectra of 10,347 stars, to be known as the Draper Catalogue. Volume XXX., Part I., which is also completed, forms a continuation of Volume

XX., and contains meteorological observations made at the Blue Hill Observatory during the year 1889.

Besides the volumes of Annals above mentioned, the following publications have appeared during the year: —

Forty-fourth Annual Report of the Astronomical Observatory of Harvard College. Cambridge, 1890.

Henry Draper Memorial. Fourth Annual Report of the Photographic Study of Stellar Spectra conducted at the Harvard College Observatory. Edward C. Pickering, Director. Cambridge, 1890. Reprinted in the Memorie della Società degli Spettroscopisti Italiani, xix. 88.

Circular on Aid to Astronomical Research. By Edward C. Pickering. Reprinted in Nature, xlii. 299; The Observatory, xiii. 286; Sidereal Messenger, ix. 329.

Observations of the Zodiacal Light made at Harvard College Observatory. By Arthur Searle. Astronomische Nachrichten, cxxiv. 405.

Comparison of Photographic Efficiency of Telescopes. By W. H. Pickering. Knowledge, xiii. 35.

The Great Nebula in Orion. By W. H. Pickering. Sidereal Messenger, ix. 1.

The Occultation of Jupiter, Sept. 3, 1889. By W. H. Pickering. Ibid. ix. 148.

Photographs of the Surface of Mars. By W. H. Pickering. Ibid. ix. 254.

Visual Observation of the Surface of Mars. By W. H. Pickering. Ibid. ix. 369.

Use of the Swing-back versus the Sliding-front. By W. H. Pickering. Anthony's International Photographic Annual, 1890, p. 252.

Comets of 1887–8. By O. C. Wendell. Sidereal Messenger, ix. 38.

Orbit of Comet 1890 I. By O. C. Wendell. Sidereal Messenger, ix. 89.

Observations of Comets 1887 V., 1888 V., and 1889 I. By O. C. Wendell. Astronomische Nachrichten cxxiii. 295; also, Astronomical Journal, ix. 91.

Transit of Comet 1889 V. over a star. By O. C. Wendell. Sidereal Messenger, ix. 134.

Observations of Comets 1889 VI. and 1890 I. By O. C. Wendell. Astronomische Nachrichten, cxxiv. 113; also, Astronomical Journal, ix. 159.

An approximate solution of Euler's Equation for Parabolic Motion. By O. C. Wendell. Sidereal Messenger, ix. 176.

Observations of Comet 1886 VII. By O. C. Wendell. Astronomische Nachrichten, cxxiv. 363; also Astronomical Journal, ix. 191.

Observations of Comets 1889 I., 1889 V., Companion to 1889 V., Comet a 1890, Comet b 1890, and Comet c 1890. By O. C. Wendell. Astronomical Journal, x. 69.

Ephemeris of Comet a 1890. By O. C. Wendell. Sidereal Messenger, ix. 276.

Elements and Ephemeris of Comet a 1890. By O. C. Wendell. Sidereal Messenger, ix. 324.

Ephemeris of Comet c 1890, for October, 1890. By O. C. Wendell. Sidereal Messenger, ix. 374.

Spectra of δ and μ Centauri. By M. Fleming. Astronomische Nachrichten, cxxiii. 383; also, Sidereal Messenger, ix. 91.

New Variable in Caelum. By M. Fleming. Astronomische Nachrichten, cxxiv. 175.

Stars having Peculiar Spectra. By M. Fleming. Ibid. cxxv. 155.

Two New Variable Stars near the Cluster 5 M Librae. By M. Fleming. Ibid. cxxv. 157.

New Variable Star in Scorpius. By M. Fleming. Ibid. cxxv. 361.

Stars having Peculiar Spectra. By M. Fleming. Ibid. cxxv. 363.

New Variable Star in Sagittarius. By M. Fleming. Ibid. cxxv. 365.

Stars having Peculiar Spectra. By M. Fleming. Sidereal Messenger, ix. 379.

Transit Observations in Photography. By W. P. Gerrish. Sidereal Messenger, ix. 121.

A Simple Break Circuit for Clocks. By W. P. Gerrish. Sidereal Messenger, ix. 124.

On the Spectrum of ζ Ursae Majoris. By Edward C. Pickering. American Journal of Science, cxxxix. 46. Reprinted in The Observatory, xiii. 80; Sidereal Messenger, ix. 80.

New Variable Star in Cygnus. By Edward C. Pickering. Sidereal Messenger, ix. 232.

Sur les Résultats Photométriques auxquels peut conduire la Photographie Céleste. By Edward C. Pickering. Bulletin du Comité International Permanent pour l'exécution photographique de la Carte du Ciel, Cinquième Fascicule, p. 350. Paris, 1890.

Letter to Admiral Mouchez. By Edward C. Pickering. Ibid. p. 371.

A New Class of Binary Stars. By Edward C. Pickering. Monthly Notices of the Royal Astronomical Society, l. 296.

Southern Stars having Peculiar Spectra. By Edward C. Pickering. Astronomische Nachrichten, cxxiii. 95.

Spectrum of Pleione. By Edward C. Pickering. Ibid. cxxiii. 95.

Variable Stars in Cluster G.C. 3636. By Edward C. Pickering. Ibid. cxxiii. 207.

The Star $12^{h}\cdot 18.0^{m}\cdot$ -48° 43′ (1875.0). By Edward C. Pickering. Ibid. cxxiv. 21.

New Variable Star in Cygnus, DM. $+48^{\circ}$ 2942. By Edward C. Pickering. Ibid. cxxiv. 271.

A history of the Observatory from its foundation to the present time was recently published by Mr. Daniel W. Baker, of Boston, in a series of articles in the Boston Evening Traveller, and has been reprinted in pamphlet form.

By the kind assistance of Hon. Patrick Egan, United States Minister to Chili, a full description of the work of the Observatory in South America, prepared by Mr. M. H. Bailey, was published at Santiago on February 19, 1890, in El Ferrocarril, and at Valparaiso on the following day in El Mercurio.

EDWARD C. PICKERING, *Director.*

THE MUSEUM OF COMPARATIVE ZOÖLOGY.

To the President and Fellows of Harvard College: —

During the past year the usual courses of instruction have been given at the Museum in Zoölogy by Professor Mark and Mr. Parker, assisted by Mr. C. B. Davenport in the Laboratory work. Dr. Slade has given a course in Osteology.

Professor Farlow, assisted by Mr. W. A. Setchell, has given the botanical part of the introductory course of Natural History. Professors Whitney, Shaler, and Davis, and Dr. J. E. Wolff gave the usual courses in Geology, Palæontology, Physical Geography, and Petrography. Messrs. Harris and Cobb were the Assistants in the Undergraduate instruction of the Geological Department.

The Assistants of the Museum, Professors Hagen and Faxon, Dr. Slade, Messrs. Garman and Brewster, and Professor Hyatt, have devoted a good share of their time to supplying specialists with material and information in their various departments. The geological section of the Museum, containing the Exhibition Rooms and additional Laboratories of that department, is now ready for occupancy. On the first floor it contains a large lecture-room with a seating capacity of 320 students. On the second floor are placed the Petrographical Laboratories — one for general use, the other for advanced students. In the basement are found a Chemical Laboratory, a room for grinding rocks, a room for geographical modelling, and a photographic room. The fourth floor is occupied by the two laboratories of the Physical Geography department. On the third floor, the two Exhibition Rooms assigned to the Geological and Geographical Collections connect the Exhibition Rooms of the Museum of Comparative Zoölogy with those of the Botanical and Mineralogical departments. These, in their turn, will eventually open into the Exhibition Rooms of the southwest corner-piece adjoining those of the Peabody Museum.

Messrs. W. M. Woodworth, W. Whitney, and G. H. Parker availed themselves of the facilities offered by the United States Fish Commission Station at Wood's Holl, for which the Museum is specially indebted to Colonel McDonald, U. S. Fish Commissioner. These gentlemen, as well as Messrs. C. B. Davenport, W. E. Ritter, and Professor Mark, spent some time at my Laboratory at Newport, either collecting material for future investigation, or carrying on special work in the embryology of Myozoa, Annelids, Crustacea, Echinoderm, and Polyps. Mr. Woodworth spent a few days at the

opening of the season in putting the Newport Laboratory in order for the reception of the students. The Museum has been fortunate enough to secure a fine skeleton of a Sperm Whale, about fifty feet in length. It was obtained off Fayal through the kindness of Consul Dabney, and is now in the hands of Professor Ward for mounting.

We have continued to make a few purchases, mainly to fill gaps in our Exhibition Rooms. Skins of some of the larger Selachians and Fishes have been mounted by Ward for the Atlantic and Pacific Exhibition Rooms. A fine Sea Elephant has been placed in the Atlantic Room. Otherwise few changes have taken place in the Exhibition Rooms. The collections open to the public remain in a satisfactory condition, in spite of the constantly increasing number of visitors, and the crowded condition of the rooms on holidays and Sundays.

The Museum is again indebted to Messrs. Brewster and Cabot, Professor Faxon, and Dr. Slade, for the interest they have taken in their respective departments, and for the care they have given to the collections in their charge.

Material has been sent for study to Dr. Paul Meyer of Naples, to Professor Goette of Strassburg, to Baron Lily Longchamp. to Dr. Richard Semon. The Marquis of Doria has kindly undertaken a revision of our collection of Bats. Exchanges have been made with the Museum of the Academy of Sciences of St. Petersburg, through Professor A. Strauch; the Museo Cirico of Milan, through M. Belloti; the Jardin des Plantes, through Professor L. Vaillant; the K. K. Hofnaturalien Cabinet (Dr. F. Steindachner); the British Museum (Dr. A. Günther); the University Museum of Christiana (Professor Collet; the University Museum of Berlin (Professor Mohus); Professor Ehler of Göttingen; Professor Lütken of the University Museum of Copenhagen; Dr. E. Ramsay of the Australian Museum of New South Wales at Sidney; C. W. De Vis of the Queensland Museum at Brisbane; and with the National Museum at Washington.

Of the Blake Collections, those in the hands of Professor Verrill have not yet been returned. Professor Perrier and Professor Milne Edwards have retained a part of the Blake Collections, while working up the collections of the "Talisman." Dr. P. H. Carpenter has continued his work on the Report of the "Blake" Comatulæ; the proofs of several of the plates to accompany his Report have been received.

Professor Huxley has returned the Spirula dredged by the "Blake" off Grenada, which was sent him for comparison while writing his Monograph on the species of Spirulæ collected by the "Challenger."

Messrs. Scott and Osborne have returned the larger part of the second and third instalment of the Western Vertebrates sent them for study. This material has greatly increased in value, not only from the work they have done upon it in the way of cleaning and repairing the specimens, but also from the careful study they have bestowed upon the part of the collections of Western fossils which has been placed in their hands. They have sent the manuscript and drawings of a second Bulletin on the fossil mammals from the White River and Loup fork formations, which is now in press.

A number of exceptionally fine or interesting Crinoids have been sent to Messrs. Wachsmuth and Springer for study, to assist them in the preparation of their magnificent Monograph of the Palæozoic Crinoids. The Curator of the Museum has always felt special interest in this monograph; it owes its origin to the work of Mr. Wachsmuth, based upon his original collection now in the Museum. On the death of Professor Agassiz, when Mr. Wachsmuth left Cambridge, he started a new collection, and with the assistance of his devoted and indefatigable collaborator, they have brought together a second collection, unique in its way, which has become well known to palæontologists from the "Revision of the Palæocrinoids." It is hoped that some arrangement may be made by which this monograph, so much of which is based upon the work of Mr. Wachsmuth on the collection now in Cambridge, may eventually appear in the Memoirs of the Museum.

The publications of the Museum issued during the past academic year are as follows: —

Of the Bulletin. — Vol. XVI. [Geological Series, Vol. II.]

No. 6. The Intrusive and Extrusive Triassic Trap Sheets of the Connecticut Valley. By W. M. Davis and C. L. Whittle. pp. 40. 5 plates. December, 1889.

No. 7. The Topography of Florida. By N. S. Shaler. With a Note by A. Agassiz. pp. 10. Plate. March, 1890.

No. 8. On Some Occurrences of Ottrelite and Ilmenite Schist in New England. By J. E. Wolff. pp. 7. April, 1890.

No. 9. On Keratophyre from Marblehead Neck, Massachusetts. By J. H. Sears. pp. 6. July, 1890. (Vol. XVI. *to be continued.*)

Vol. XVII.

No. 5. The Morphology of the Carotids, based on a Study of the Blood-vessels of Chlamydoselachus anguineus Garman. By H. Ayers. pp. 34. Plate. October, 1889.

No. 6. Cave Animals from Southwestern Missouri. By S. Garman. pp. 16. 2 plates. December, 1889.

Vol. XIX. [Complete.]

No. 1. Studies on Lepidosteus. Part I. By E. L. Mark. pp. 128. 9 plates. Feburary, 1890.

No. 2. On the Egg Membranes and Micropyle of some Osseus Fishes. By C. H. Eigenmann. pp. 26. 3 plates. March, 1890.

No. 3. Report on the Results of Dredging by the United States Coast Survey Steamer "Blake." — XXXII. Report on the Nudibranchs. By R. Bergh. pp. 28. 3 plates. March, 1890.

No. 4. A Third Supplement to the Fifth Volume of the Terrestrial Air-breathing Mollusks of the United States and Adjacent Territories. By W. G. Binney. pp. 44. 11 plates. May, 1890.

Vol. XX.

No. 1. The Histology and Development of the Eye in the Lobster. By G. H. Parker. pp. 60. 4 plates. May, 1890. (Vol. XX. *to be continued.*)

Of the Memoirs. — Vol. XVI.

No. 3. Genesis of the Arietidæ. By A. Hyatt. pp. i.–xii. 238. 14 plates and 6 tables. Published in Conjunction with the Smithsonian Institution. December, 1889. (Vol. XVI. *is completed.*)

Vol. XVII.

No. 1. The Immature State of the Odonata. Part III. Sub-family Cordulina. By Louis Cabot. pp. 52. 6 plates. February, 1890.

We have published twelve numbers of the Bulletin, four in the Geological, and eight in the Zoölogical Series. One number of the Memoirs, "The Genesis of the Arietidæ," by Professor Hyatt, has been published jointly with the Smithsonian. This important memoir has been in preparation by Professor Hyatt for a number of years, and is an important contribution to the palæontological history of the Cephalopods.

A number of Bulletins are in preparation, representing the work of the students of the Zoölogical Laboratory in charge of Professor Mark.

Mr. Louis Cabot is preparing the final part of his Memoir on the Immature State of the Odonta.

Mr. Garman is preparing for the press a Monograph on the Liparidæ, commenced seven years ago by Professor Putnam. He has also nearly completed an account of the North American Reptiles. The second part of the Memoir on the Development of Osseous Fishes, by Professor Whitman and myself, is nearly completed, and I have made good progress in the preparation of my Monograph on Calamocrinus, of which twenty plates have been completed.

The accessions to the library show a decided increase in number even over the past year, which had shown the largest accessions thus far received.

When Professor Goodale succeeded in obtaining the necessary funds for an extension of the University Museum in order to accommodate the Botanical department, it became necessary that the Museum of Comparative Zoölogy should obtain means for building

a section to connect the Natural History Laboratories with the Botanical Section.

All attempts to obtain this from outside sources having failed, the Curator applied to the Corporation to advance the money needed for the building and its equipment, so as to make it available for the Petrographical, Geographical, and Geological departments. This the Corporation has done, and as on former occasions these advances, amounting to about $25,000, will have to be repaid from the income of the Museum. This will naturally cripple our resources for six or seven years, unless the sum can be provided for the Museum by the friends of the Geological department. The Geological Section, now finished, completes the plan of the laboratories for the Zoölogical, Geological, and Geographical departments, and we are now well provided with laboratories, though their equipment still leaves a good deal to be desired, as also in way of models for the Geographical and Geological departments, and in the fitting up of the Vivarium and Aquarium for the Zoölogical department. For these objects an additional $8000 is required. Ample room is now provided for the exhibition of everything that is likely to interest the public, and this space need never be enlarged, while the efficiency of the exhibit can always be improved by culling out poor specimens and replacing them by better or more interesting types. Of course the University may, in the course of time, outgrow the laboratories, but there is ample room for their expansion in the corner-piece which is eventually to connect the main building of the University Museum with the Peabody Museum, forming the South wing of the structure.

There is, however, one point in the organization of the Museum to which I should like to call attention. Nearly two thirds of the North wing, the part of our structure called the Museum of Comparative Zoölogy, is devoted to the storage of our collections intended for study and not for exhibition. I can safely say that there is no museum in which the system of storage of both dry and alcoholic specimens is as convenient for access as that of the Museum collection. Special rooms are devoted to special subjects, and they are so arranged that a number of specialists could work at the same time on any part of the collections without inconvenience. For the alcoholic collections two rooms, 30 by 40 feet, are reserved in the basement for such use. In the rooms containing the dry collection (both recent and fossil) the space adjoining the windows has been equipped with tables. A large space is everywhere left, ample for the needs of specialists interested in any part of our collection. This space is an equivalent of 8 by 40 feet in each of the nineteen rooms in which the collections are stored. It is this part of the Museum which I should

like to make more available to students and specialists. But without a larger staff to oversee the rooms while they may be occupied, it is impossible to grant the unrestricted use of our collections to those who might avail themselves of the facilities we are able to give for study.

The practice of sending collections to specialists for study is ruinous to the specimens; each invoice involves considerable work on the part of the Assistants, and the danger of misplacing labels during the packing and unpacking is very considerable. So that in the future we shall be obliged, on the ground of safety for our collections, to refuse to send specimens out of the building, and to invite the specialists to avail themselves of our facilities on the spot. The staff of the Museum is somewhat crippled at present, there being no Assistant in charge of the Invertebrates. As this collection can, however, be otherwise cared for, it has been decided by the Museum Faculty not to fill this place until the Museum is out of debt. I would also call attention to the necessity of having a regular Assistant for the care of our Vertebrate Fossil Collections. These are already quite extensive, and the collections we receive in the future from the West must of necessity be very large. But at present the Museum has no means to pay such an Assistant, nor have we the means to spend from $5000 to $6000 annually for a number of years in making explorations of Western territories in order to fill our gaps, both in the fossils of the various well-known Western fossiliferous beds, and in the systematic series of fossils which are found there. The Assistant in charge of the collection of Skeletons of Mammals receives no remuneration from the Museum.

The Museum publications are strictly limited to the work done in the Museum by the Professors and their Assistants, and the students of the various laboratories, or to the work of specialists based upon the Museum collections.

The arrangement of our Palæontological Rooms progresses very slowly, mainly for want of funds for the necessary cases. It would require about $20,000 to place on exhibition a suitable selection of our fossils.

Provision has been made, by borrowing the needed money from the Corporation, for the greater part of the fossils for the Tertiary Rooms, which promise to be our most valuable and instructive Exhibition Rooms. The acquisition of a fine series of Pampas Mammals, obtained through the agency of Professor Henry A. Ward, including mountable skeletons of Mylodon, Glyptodon, Lestodon, Scolidotherium, and Texodon, will necessitate a redistribution of the space assigned to the Tertiary Faunæ. In order to provide for the room

required by North American Tertiary Mammals, two rooms at least will be required which can be advantageously filled with interesting and instructive specimens of tertiary fossils for exhibition, and the Mesozoic and Palæozoic Faunæ will each have to be limited to one room.

ALEXANDER AGASSIZ.

CAMBRIDGE, October 1, 1890.

THE PEABODY MUSEUM OF AMERICAN ARCHAEOLOGY AND ETHNOLOGY.

TO THE PRESIDENT OF THE UNIVERSITY:

SIR, — The Board of Trustees of the Peabody Museum of American Archaeology and Ethnology in connection with Harvard University held its annual meeting this day in the Rooms of the Massachusetts Historical Society, Boston, Hon. Robert C. Winthrop presiding. Present, Messrs. Winthrop, Lovering, Scudder, Putnam, and Wheatland.

Mr. Putnam, the Peabody Professor and Curator of the Museum, presented the 24th Annual Report, which was accepted and ordered to be printed.

An abstract was read, and a copy was ordered to be transmitted to President Eliot as the Report of this Board to the President and Fellows of Harvard University.

Respectfully submitted,

HENRY WHEATLAND, *Secretary.*

2 DECEMBER, 1890.

ABSTRACT OF THE REPORT OF THE PEABODY PROFESSOR OF AMERICAN ARCHAEOLOGY AND ETHNOLOGY.

TO THE TRUSTEES OF THE PEABODY MUSEUM:

GENTLEMEN, — The results of the past year exhibit a great and growing interest in the Museum and its special work. Never before has so much encouragement been given or more interest manifested. The value of the Museum is beginning to be understood and its importance as a school of anthropology acknowledged. The peculiar conditions attending its foundation as an independent institution, which at the same time should form a constituent part of the University, have both helped and hindered its advancement. But the time has now come when the requirements of advanced education demand a closer connection between this and the other departments of the University.

THE BUILDING. — A year ago mention was made of the addition of sixty feet to our building, which more than doubled the space for the exhibition of collections. It was then stated that if we were to depend on the income of the small building fund, now remaining, for casing these new halls, there would be a delay of several years before the rooms could be arranged and opened to students and visitors. It therefore gives me much pleasure to state that this great loss of time has been reduced by the generous gift of Mrs. Susan C. Warren of Boston, who, on the eve of departure for Europe last summer, sent me her check for $7000, with the request that $5000 should be expended in cases for one of the new halls. This liberality on the part of one who has before shown a practical interest in the Museum has furnished the means of carrying on this work during the year, so that by spring we shall be able to begin the arrangement of the specimens in one of the new galleries and in the cases in the Lecture Hall. The cases are also being made for the first gallery, which is given up temporarily to the Semitic Collection of the University, founded by Mr. Jacob H. Schiff of New York. The understanding in this matter is that the University shall pay the cost of the work, and that on the removal of the Semitic Collection to its permanent home we shall refund the cost of the cases so far as they are made as permanent cases in the gallery and under our direction. This assistance on our part enables the Semitic department to make immediate use of the liberal gift of Mr. Schiff, and to display during the present winter an instructive collection of casts of Assyrian slabs and such other objects as have already been secured. The establishment of this new department, which has so much in common with our own, cannot but suggest the possibility of the addition of others which shall include Indian, Egyptian, and Classical Archaeology.

In relation to our part of the University Museum, it must be remembered that we have one hundred feet to cover by an addition to our present building before the southwestern corner-block is reached, and that we should hasten to secure the necessary money for this purpose. The important collections which for several years have been stored, and the specimens obtained by our now active work in the field, will fill the new rooms as soon as the cases are ready. Moreover, until the whole building is erected and we know the full amount of room available for the purpose, the perfect arrangement of the Museum, in which all the collections are to be exhibited in their natural sequence and order, is impossible. Of the original building fund of $60,000 given by Mr. Peabody there is still nearly one half remaining, and this it seems most desirable to keep as a permanent fund, using the interest for cases and incidentals as occasions arise. The other half of the fund is represented by a building which, with its cases and equipment, has cost over $116,000. Thus the original purpose of the founder has already been more than fulfilled. What is needed now is $100,000 for the completion of our part of the University Museum building.

THE COLLECTIONS. — Many important additions have been made to the Museum during the year, not only from the special explorations, but also by purchase and by gifts. Among the latter, special mention

must be made of an extremely interesting collection secured by Mr. Charles P. Bowditch while in Mexico. This was brought together by a gentleman who had been living in the State of Oajaca for some time, and had obtained the specimens in part from the Mexicans and in part by his own collecting. Many were taken from graves, while others were ploughed up on cultivated fields or gathered from other sources. The collection contains a number of objects made of jadeite, including several carved pieces, among which is a large bead carved to represent a human face. There are many human heads in pottery of a general character, differing from the smaller heads so common about the pyramids of San Juan Teotihuacan, and also a lot of unquestionably ancient pottery vessels of many forms. Among them is one large vase in the form of a human figure, with a curved and greatly exaggerated nose, a wide mouth, and a singular ornament over the head. This so closely resembles the representations of the human face and the head-ornament in some of the carvings in stone found on the ancient buildings of Yucatan as to strongly suggest the identity of their origin. There are several other vases of human form, three of which have open spaces through the eyes and mouth. A necklace of large stone beads is represented on each of these figures. There are also several carved stones which are believed to be representations of ancient Mexican gods.

The Mexican collection has also been increased by gifts from Mrs. Warren, comprising numerous objects of interest purchased while travelling in that country. Among the most important is a large red jar of ancient pottery from Cholula and several of the "gods" both in pottery and stone.

Mr. Stephen Salisbury, who in many ways is continually showing his interest in the Museum, has recently given the moulds — made at his expense by Mr. Edward Thompson several years ago — of the lower portion of the western face of the ancient building at Labna known as the Palace. By a cast from these moulds we shall be able to represent a portion of this remarkable building with its strange carvings in stone. In this connection I may add that during his visit to this country last summer Mr. Thompson made several casts for the Museum from moulds of carved stone-slabs which he had taken in Yucatan. For these he kindly provided the material, and did the work with his own hands, that we might have perfect reproductions of the original carvings.

It is with pleasure that I also mention a collection of human crania from the ruins near Zuni, collected by the Hemenway Southwestern Archaeological Expedition and kindly presented by Mrs. Mary Hemenway. They are of particular interest for comparison with a collection we have from Colorado, and show that there was a certain amount of artificial deformation in the latter which does not exist in the former. We await with interest Dr. Washington Matthews' paper on the crania collected by the Hemenway expedition under the direction of Mr. Cushing.

From Miss Fletcher we have received many objects obtained during her long visits to the Omaha, Ponca, Winnebago, Sioux, and Nez Percé Indians, all of which illustrate customs of the past which are fast giving way before the changes now rapidly taking place among

the Indian tribes. The most remarkable among the recent gifts, and one showing in an impressive manner the high esteem in which she is held by her friends the Omahas, is that of the Sacred Pole with scalps of noted enemies of the tribe, the sacred pipe, arrows, and other objects used in the ceremonies connected with this emblem of power and authority. These most sacred of all objects, held dear to the tribe and probably never before seen by the eyes of another race, together with the other contents of the Sacred Tent — of which mention was made in a former report — were given to Miss Fletcher and her particular Omaha friend and associate in much of her work — Mr. Francis La Flesche. These relics were given by their last guardian in the tribe to be cared for as a sacred trust in this Museum. Since, largely through her efforts, the people have become citizens and been brought to civilized ways, these objects no longer form part in the ceremonies of the tribe, and were given up to her keeping as an acknowledgment of their adoption of a new life. We can probably never obtain another group of objects telling so much of the past customs of the Indians as these strange, mysterious emblems which for centuries have influenced the acts of a united people. Their ethnological value is greatly enhanced by the information collected by Miss Fletcher during her residence among the Omahas relating to the superstitions and ceremonies connected with these sacred emblems of the tribe.

By purchase we have made a small addition to our Peruvian collection of pottery and also obtained a number of pottery vessels, stone implements, and carved stones from Chiriqui from the well-known collector, Mr. J. A. McNiel. Unfortunately a large part of this collection was in a badly-damaged condition, probably owing in great measure to carelessness in examining and repacking it at the New York Custom House.

Another important collection, obtained by purchase, consists of a large number of implements, weapons, masks, and other objects from New Guinea and from several islands of the Pacific, adding very much of interest to our collections from the natives of these islands, who are now so rapidly changing their modes of life and giving up their aboriginal weapons and implements for those of European manufacture, that it would be almost impossible to secure such a collection at the present time.

We have also received a number of casts from Paris, and many others are on their way. These comprise all the most important casts made from moulds taken by M. Désiré Charnay during the Lorillard Expedition to Yucatan and other parts of Mexico. They have been offered to the Museum on the most liberal terms, and are indispensable in illustrating the singular art and hieroglyphic writing of the ancient builders of the great stone structures in Yucatan. It is thus essential that we should have them to fill out our already important collection relating to ancient Mexico. It will be a difficult matter to so economize our resources as to pay for these instructive casts, even under the liberal terms at which we can obtain them; but it is one of the instances when we must take advantage of an opportunity that is not likely to occur again, the loss of which would be an ever-increasing regret.

Another collection has been placed in the Museum, subject to purchase. which should be secured if possible. It consists of a lot of copper implements accidentally found by a sailor some years ago while in the Province of Tobasco, Mexico. These implements form an important link in the chain of evidence upon the working of stone in Mexico and Central America. They are mostly tools of rather large size and show by their battered edges that they were used in cutting hard substances. Very few copper implements of any kind have been found in this region — and none, to my knowledge, like several specimens in this lot — while it has always been supposed from the evidence of the ancient pictographs that copper implements, and probably bronze also, were common in ancient times. The fact that these implements were found together makes them of the utmost importance. Toward the purchase of this collection a friend offers $250. It is hoped that the $500 still required for their purchase may be obtained.

EXPLORATIONS. — Thanks to the assistance of several friends, particularly Mrs. Warren, Mrs. Ware, Mr. C. P. Bowditch, and Mr. Stephen Salisbury, the field work has been carried on during the year in various parts of the Continent. Several explorations are still unfinished and will be better left undescribed until another year. Of others mention will now be made.

Mr. Hilborne T. Cresson devoted the early part of the season to a further examination of the gravels of Pennsylvania and Delaware, and in connection with Mr. Charles Ottey of Claymont, Delaware, explored a rock-shelter near Chelsea, Pennsylvania, where an extensive collection was obtained, for which we are largely indebted to Mr. Ottey. Later in the season Mr. Cresson and Mr. Ernest Volk joined the party in Ohio, and during the examination of the gravels along the Little Miami Valley and of the banks of the river, were rewarded by the discovery of two ancient hearths, one of which was 13 feet below the surface of the bottom land. On the burnt stones was a considerable quantity of ashes and charcoal. This is by far the oldest of the hearths which have been exposed by the action of the river, as first noticed by Dr. Metz, and whatever its age may be, it is now certain that man was living in this valley at the time when it was slowly filling with the alluvium forming the rich bottom land of the valley.

As it is of the greatest importance for future explorations that others should be trained to carry on the work after the methods by which we have already secured such important results, I this year established two camps in the valley of the Little Miami River. The first was at the Turner group, where I have been exploring nearly every season during the last ten years, with the valued coöperation of Dr. Metz, who has had charge of the work when I was not on the ground, and who continues to give all the time he can take from his professional duties. This camp was placed in charge of Marshall H. Saville on the first of June; later Mr. Ernest Volk joined him, and for a short time Mr. H. T. Cresson and Mr. Dorsey were at this camp.

Mr. Volk, before and after working in Ohio, was engaged in explo-

rations in the Delaware Valley, where he obtained interesting results which will be mentioned in a future Report.

About twenty miles up the Little Miami from the Turner group, at the town of Fosters, the river flows south for a short distance through a deep gorge. On the west side of the river a steep ascent leads to a high, narrow plateau. This plateau is bounded on the west by a tributary known as Cline's Run, which flows southward and eastward to the river. The plateau is surrounded by the river and creek except on its northern side. Around the steep sides of this hill and cutting across the northern and part of the southern portions there is a singular structure of burnt clay and stones which has long been an object of interest in the neighborhood. For several years it has been our wish to explore this place, and finally, through the assistance of Dr. Metz — with whom I have several times visited the spot — Mr. Clemence Schimmel and Mr. George Clarke, owners of the property upon which the larger part of this ancient work is situated, kindly consented to our exploring that portion of their land. Taking Mr. Cresson and Mr. Dorsey as assistants, I established a camp within the enclosure, under the oaks, maples, and other trees of an apparently primeval forest. These trees had been preserved by the forethought of Mr. Clarke's father and are guarded by their present owner with a care quite unusual in our forest-destroying race. I remained here for nearly a month, and then left Mr. Cresson and Mr. Dorsey to do all they could until the last of September. Much of interest was discovered in relation to this singular structure, of which a somewhat detailed account is given in my full Report.

Lectures and Instruction. — As in former years, the Curator has given occasional lectures in the Museum, and several social meetings have been held in our halls, on which occasions he has had the pleasure of making addresses on special topics of anthropology. In this connection the meeting of the American Academy of Dental Science may be mentioned, at which a series of skulls was exhibited showing diseases of the teeth and jaws and peculiar conditions of growth and wear of teeth among the various prehistoric peoples and Indian tribes of America. Much interest was awakened in the profession by calling attention to many affections of the teeth which have been generally supposed to be effects of civilization.

The Harvard Historical Society also held a meeting in our rooms, at which time an account was given of the different prehistoric peoples of America, illustrated by specimens of their crania and works of art. At the opening of the present term, by the request of Professor Channing, a lecture was given to his class in Early American History on the peoples of this Continent before and at the time of Columbus. Several schools and classes have visited the Museum and when possible the Curator has given them explanations of the collections. In this way something has been done toward making known the plans and resources of the Museum.

During the present year three private students have been in attendance for laboratory instruction, and two from the Graduate School of the University have entered for a three-years' course for the degree of Ph.D. As this department has not heretofore been included among

those in which this high degree can be obtained, no regular course of study had been planned, and therefore the following outline of a course was presented to the Faculty of Arts and Sciences, and is that upon which the studies of graduate students selecting this department will be based.

OUTLINE OF A COURSE IN AMERICAN ARCHAEOLOGY AND ETHNOLOGY FOR ADVANCED STUDENTS.

LABORATORY WORK. — A study of implements, utensils, and ornaments made of stone, and the methods of their manufacture. The student thus learning to identify the many kinds of stone used by primitive man for various purposes and the different methods by which desired results were obtained.

A similar study of objects made of bone, horn, ivory, shell, and other parts of animals, including identification of these parts and of the animals to which they belong; thus requiring of the student a knowledge of the principal groups of animals and particularly of comparative osteology. Also the study of various objects made of wood.

A study of textile fabrics of prehistoric times; the methods of plaiting, braiding, and weaving; the identification of animal and vegetable substances used for these purposes. The student thus learning to use the lens and the microscope and acquiring some knowledge of the tissues of animals and plants.

The methods of the manufacture of pottery; including a study of the different clays and their combination with various materials, and the several ways of forming vessels and other pottery objects.

The determination of ores and metals, the manner of working them, and the methods of manufacture into implements, ornaments, etc.

The study of decoration — plastic work, cutting, carving, painting, and plaiting; the methods and materials used, etc., etc.

The physical characteristics of man as determined by a comparative study of his bones. Craniology, anthropometry, and the determination of races and varieties of man so far as possible from his bony structure, etc.

MUSEUM WORK. — How to handle and use specimens. Plan of the arrangement of the Museum. Labelling, numbering, cataloguing, etc. Thus teaching the student how to make use of the Museum and enabling him to find and properly use specimens required for the next part of his work.

COMPARATIVE ARCHAEOLOGY. — The student is required to make a comparative study of objects from various parts of America and of other countries. Thus leading to a study of the migrations of peoples as indicated by the remains of their handiwork.

THE EVIDENCE OF THE ANTIQUITY OF MAN. — Including instruction in geology with particular reference to the formation of gravel-beds, peat-bogs, the cutting of river valleys, the formation of caves, etc.

FIELD WORK. — Comprising surface geology, the exploration of shell-heaps and other refuse-piles, old village-sites, burial-places, mounds, earthworks, etc., and, when possible, of the ruins of cliff-dwellings and pueblos of the south-west, and of the ancient stone structures of Mexico and Peru. This is supplemented by the study of photographs, drawings, and casts of such structures as the student may be unable to visit; all leading to a study of the conditions under which man has lived in America; his home life; and also the development of architecture.

ETHNOLOGY. — A study of the native peoples of the American Continent; their skeletons, customs, manner of life, dwellings, arts, traditions, myths, religions, pictographs, languages, etc. This part of the course — excepting the study of weapons and other implements, utensils, ornaments, customs, and skeletons in the Museum — is largely confined to special reading of some of the early writers relating to America and of works on the customs, myths, religions, and languages of the American peoples.

Instruction in the Museum is supplemented by lectures and talks to the students, and the work is guided and directed both in the Museum and in the field. Students are required to make drawings of specimens studied, also to write descriptions of objects, and to draw to scale and report in full upon earthworks, etc., observed in the field.

The course here briefly outlined is intended to give the graduate student as thorough training in American Archaeology and Ethnology as is possible in a three-years' course of study and to prepare him for carrying on independent research.

F. W. PUTNAM,
Peabody Professor of American Archaeology and Ethnology.

THE VISITING COMMITTEE. — The reorganization of the Visiting Committees appointed by the Board of Overseers, by which a Special Committee was assigned to this department, has proved of great importance in advancing the diversified interests of the Museum. The Committee, consisting of Mr. Augustus Hemenway, Dr. Francis M. Weld, Mr. Charles P. Bowditch, Professor Henry W. Haynes, Mr. T. Jefferson Coolidge, Jr., and Dr. J. Walter Fewkes, has held regular meetings at the Museum and in Boston, at which the welfare of the Museum has been discussed and various plans for the advancement of this department of the University have been considered. In full sympathy with my hopes that assistants may be trained to aid in the care of the Museum, Mr. Bowditch and Dr. Weld have agreed to furnish $500 a year for three years as a fellowship for a student-assistant. This fellowship is now held by Mr. Marshall H. Saville, who has been a special student with me for nearly two years.

Through the influence of the Visiting Committee, Mrs. Mary Hemenway has also made an offer of $10,000 for the foundation of another fellowship to be held by a graduate student in this department. This offer is subject to certain conditions, to be accepted by the Corporation, looking to the full acknowledgment of this department as open to graduate students. The Committee have other plans in contemplation which will still further advance this department of the University, and we cannot be too grateful for their cordial support in our undertakings.

THE THAW FELLOWSHIP. — Another most gratifying incident of the year is the recent gift of $30,000 for a fellowship fund by Mrs. Mary Copley Thaw of Pittsburgh, Pennsylvania. While this foundation is primarily due to her appreciation of the important labors of Miss Alice C. Fletcher among the Indians, yet the Museum would not have been selected as the medium for carrying out her generous intentions, nor would the gift have been made a perpetual fellowship,

had not Mrs. Thaw been fully convinced of the importance of the work done under the direction of this Museum. The gift is all the more gratifying to us because it comes from a distant source, and also because Miss Fletcher has been associated with the Museum as a special assistant during all her noble work among the Indians.

The following is a copy of the letter of trust: —

PITTSBURGH, Pa., October 1, 1890.

TO THE TRUSTEES OF THE PEABODY MUSEUM OF AMERICAN ARCHAEOLOGY AND ETHNOLOGY, CAMBRIDGE, MASS.

GENTLEMEN: — It is my wish to aid and further the philanthropic and scientific work of Miss Alice C. Fletcher among the North American Indians.

This work has been successfully carried on by Miss Fletcher for many years, as well for the advancement of the Indians as for the enlightenment of the American people.

I do, therefore, herewith give to Robert C. Winthrop, Henry Wheatland, Francis C. Lowell, Stephen Salisbury, Samuel H. Scudder, Joseph Lovering, and Frederic W. Putnam, all of Massachusetts, and their successors, "TRUSTEES OF THE PEABODY MUSEUM OF AMERICAN ARCHAEOLOGY AND ETHNOLOGY IN CONNECTION WITH HARVARD UNIVERSITY," thirty (30) bonds of the Girard Point Storage Company of Philadelphia, Pa., Nos. 335 to 364 inclusive, each for the sum of one thousand ($1000) dollars, principal dated April 1, 1890, and payable fifty years after the date thereof, with interest thereon at the rate of three and one half per centum per annum, payable semi-annually, being in the aggregate the sum of thirty thousand ($30,000) dollars principal; to be held as a trust for the following purposes:

The full income of the fund to be paid regularly as a salary to Miss Alice C. Fletcher during her life, or so long as she may continue to carry on such work as I have here indicated in a manner satisfactory to the Trustees of the Museum; it being understood that in case of her inability to carry on the work, whether by cause of sickness or from old age, the income of the fund shall continue to be paid to her.

In the event of the death of Miss Alice C. Fletcher, I hereby direct that the income of the fund shall be thereafter devoted to the payment of the salary of such person as shall be appointed by the Trustees of the Museum to succeed Alice C. Fletcher to carry on the same line of work and research relating to the Indian race of America or other ethnological and archaeological investigations.

It is my wish that in memory of my late husband, William Thaw, who was so much interested in the philanthropic and scientific labors of Miss Fletcher, this Trust Fund should be invested and known as "The Thaw Fellowship Fund."

The said Trustees do hereby accept the trust hereinbefore set forth and defined, and do hereby acknowledge to have received the bonds hereinbefore mentioned.

WITNESS the hands and seals of the parties the day and year first aforesaid.

ATTEST: MARY COPLEY THAW.

As to MRS. MARY C. THAW, WILLIAM THAW, JR.

LIBRARY AND PUBLICATIONS. — As the scope of our library is necessarily limited, and we seldom purchase a book, its growth is slow. This is of less importance, however, than would be the case if the General Library of the University did not furnish us with catalogue-

cards of all volumes and papers pertaining to archaeology, ethnology, and kindred subjects received at the General Library. Six hundred and twenty-four catalogue-cards, including books and pamphlets received by our own library and catalogued by the General Library, have been added during the year. We have received seventy volumes and sixty-nine pamphlets as gifts from thirty-seven persons and fifty-eight institutions in various parts of the world and have purchased eight other volumes. Thirty photographs have been given by ten persons. The library is open for consultation to any member of the University and volumes are often loaned for special purposes.

Of the Special Papers, the 2nd and 3rd numbers are now in press and will soon be issued. The 2nd is a Memoir and Vocabulary of the Karankawa Indians by Mr. Albert S. Gatschet and others. The 3rd comprises a valuable Memoir by Mrs. Zelia Nuttall on the Atlatl or Spear-thrower of the Ancient Mexicans, illustrated by three plates.

GIFTS OF MONEY. — In no former year have the friends of the Museum been so generous in giving their aid. Gifts for current expenses have been received which, in the sum total, exceed the regular income from our funds, while the endowment of the William Thaw Fellowship has added $30,000 to the amount held in trust. The gifts for immediate use have been as follows: —

From Mrs. Susan C. Warren, Boston, for cases	$5,000.00
and for explorations	2,000.00
" Mrs. Elizabeth C. Ware, Boston, for explorations	1,000.00
" Capt. Nathan Appleton, Boston, for explorations	100.00
" Hon. Robert C. Winthrop, for salary of assistant	100.00
" Dr. Francis M. Weld, Jamaica Plain, for salary of assistant	25.00
" Mrs. N. E. Baylies, New York, for salary of assistant	25.00
" New England Telephone Co., Boston, for Museum expenses	28.00
	$8,278.00

Although in earlier years a few gifts were made to the Museum in the form of collections purchased and presented — notably the Nicolucci collection from Italy, by the Hon. Theodore Lyman — and many gifts of collections of great pecuniary value have been received from time to time, yet the first gift of money to be expended in carrying on the work of the Museum was that of Dr. Wm. Mack in 1881.

In 1881. — Dr. William Mack of Salem, aided a special exploration by the gift of	$75.00
In 1882. — In response to a circular letter asking assistance for the explorations in Ohio and Tennessee, and by the personal interest of Mr. Theodore Lyman and the late John C. Phillips, both Trustees at the time, there was received from eleven ladies and gentlemen	3,350.00
There was also received toward the salary of an assistant	225.00
and in aid of Miss Fletcher's researches among the Indians	550.00
In 1883. — There was received for explorations	555.00
and toward an assistant's salary	33.00
In 1884. — For explorations	720.00

In 1885. — For explorations	5.00
and for current expenses of the Museum	16.33
In 1886. — For explorations	2,725.00
For Museum expenses	28.00
In 1887. — For explorations, including $500 in memory of a friend who had contributed generously to this work	635.00
For Museum expenses	14.00
In 1887-9. — The Serpent Mound fund for the purchase and exploration of the Serpent Mound and its surroundings	8,738.00
In 1888. — For explorations	1,005.00
For publications	125.00
For Museum expenses	28.00
In 1889. — For purchase of South American collection	500.00
For Museum expenses	21.00
For publications (subscriptions)	175.00
In 1890. — (As above stated in detail), for explorations	3,100.00
For cases	5,000.00
For salary of assistant	150.00
For Museum expenses	28.00
Making a total received for current expenses	$27,801.33

When we recall that the permanent fund for the support of the Museum gives an income of only $2376 a year for all expenses of heating and care of the building — which is open to the public throughout the year with the exception of Sundays and holidays — as well as all incidental expenses relating to the increase and care of the collections, we can realize how little we could accomplish were it not for the generosity of friends who have given us, on an average, $3089 a year during the past nine years. Moreover, until some benefactor adds largely to our permanent funds we shall be entirely dependent on continuous aid of this kind for the means of keeping the Museum in the advanced position it now holds.

I am glad to add that the contributions have already begun for the new year by the receipt of $500 on account of the Visiting Committee fellowship and $100 for explorations. Neither of these sums appear in the statement made above.

The following is a summary of the expenses for the year: —

Building, repairs, furniture, and incidentals	$1,145.06
Cases	2,361.95
Fuel, gas, and water	411.55
Postage, express, and telephone	378.20
Library, publications, photographing, etc.	248.59
Incidentals	93.50
Explorations	3,158.20
Salaries	4,107.63
	$11,904.68

Respectfully submitted,

F. W. PUTNAM,

Peabody Professor of American Archaeology and Ethnology, and Curator of the Museum.

CAMBRIDGE, Dec. 2, 1890.

APPENDIX.

RESIGNATIONS.

FRANCIS BOWEN, Alford Professor of Natural Religion, Moral Philosophy, and Civil Polity, October 7, 1889, to take effect September 1, 1889.

FRANK BEVERLY WILLIAMS, Instructor in Political Economy, October 7, 1889.

WILLIAM FRANCIS GANONG, Assistant in Botany, October 28, 1889.

DANIEL WILLIAM SHEA, Assistant in Physics, October 28, 1889.

GUSTAVUS HAY, Member of the Boylston Medical Prize Committee, November 11, 1889.

OTIS KIMBALL NEWELL, Assistant Demonstrator of Anatomy, November 25, 1889, to take effect December 1, 1889.

WILLIAM ALBERT KEENER, Story Professor of Law, March 10, 1890, to take effect September 1, 1890.

PATRICK WILLIAM MORIARTY, Assistant Demonstrator of Operative Dentistry, March 17, 1890.

ROBERT WILLARD GREENLEAF, Assistant in Histology and Embryology, May 12, 1890.

WILLIAM FISKE WHITNEY, Secretary of the Medical Faculty, May 12, 1890, to take effect September 1, 1890.

ALEXANDER AGASSIZ, Fellow of the Corporation, September 23, 1890.

APPOINTMENTS.

[UNLIMITED, OR FOR TERMS LONGER THAN ONE YEAR.]

WILLIAM BARKER HILLS, to be Associate Professor of Chemistry, October 7, 1889.

FRANCIS BOWEN, to be Alford Professor of Natural Religion, Moral Philosophy, and Civil Polity, Emeritus, October 28, 1889.

GEORGE HERBERT PALMER, to be Alford Professor of Natural Religion, Moral Philosophy, and Civil Polity, October 28, 1889.

WILLIAM JAMES, to be Professor of Psychology, November 11, 1889.

DUDLEY ALLEN SARGENT, to be Director of the Hemenway Gymnasium, November 25, 1889.

JEREMIAH SMITH, to be Story Professor of Law, March 31, 1890.

THOMAS J. KIERNAN, to be Assistant in the Library from November 12, 1877, April 28, 1890.

SAMUEL WILLISTON, to be Assistant Professor of Law for five years from September 1, 1890, April 28, 1890.

AMOS LAWRENCE MASON, to be Assistant Professor of Clinical Medicine for five years from September 1, 1890, May 12, 1890.

EDWARD CAMPBELL BECKETT, to be Superintendent of the Veterinary Hospital for three years from July 1, 1890, May 12, 1890.

Frank Bigelow Tarbell, to be Instructor in Greek and Latin, May 26, 1890.

Philippe Belknap Marcou, to be Tutor in French for three years from September 1, 1890, May 26, 1890.

Clement Lawrence Smith,
Charles Eliot Norton,
Charles Joyce White,
George Herbert Palmer,
John Trowbridge,
William Morris Davis,
William Elwood Byerly,
Charles Rockwell Lanman,
Silas Marcus Macvane,
John Henry Wright,
George Alonzo Bartlett,
Adolphe Cohn,
George Lyman Kittredge,
Freeman Snow,
Oliver Whipple Huntington,
Morris Hicky Morgan,
} to be Members of the Administrative Board of Harvard College, June 9, 1890.

Winfield Scott Chaplin,
Nathaniel Southgate Shaler,
Henry Barker Hill,
Edwin Herbert Hall,
Benjamin Osgood Peirce,
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Charles Loring Jackson,
Edward Laurens Mark,
David Gordon Lyon,
Edward Stevens Sheldon,
Edward Channing,
Frank William Taussig,
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Le Baron Russell Briggs, to be Professor of English from September 1, 1890, June 9, 1890.

William Morris Davis, to be Professor of Physical Geography from September 1, 1890, June 9, 1890.

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Lewis Edward Gates, to be Instructor in English, June 9, 1890.

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JERE EDMUND STANTON, to be Instructor in Oral Anatomy and Physiology for three years from September 1, 1890, June 23, 1890.

JAMES GRAY LATHROP, to be Assistant in Physical Training for three years from September 1, 1890, June 25, 1890.

ALBERT ANDREW HOWARD, to be Tutor in Latin for three years from September 1, 1890, September 23, 1890.

[FOR ONE YEAR OR LESS.]

For 1889–90.

JOHN GRAHAM BROOKS, to be Instructor in Political Economy, October 7, 1889.

EDWARD CAMPBELL MASON, to be Instructor in Political Economy, October 7, 1889.

FRANK WALTER NICOLSON, to be Instructor in Latin, October 7, 1890.

PATRICK WILLIAM MORIARTY, to be Assistant Demonstrator of Operative Dentistry, October 7, 1889.

FREDERICK HAROLD BAILEY, to be Assistant in Mathematics, October 7, 1889.

WILLIAM DAVIS MACKINTOSH,
CHARLES AVERELL RICH,
WALLACE CLEMENT SABINE,
DANIEL WILLIAM SHEA,
} to be Assistants in Physics, October 7, 1889.

CHARLES BENEDICT DAVENPORT,
FRANK BEVERLY WILLIAMS,
} to be Proctors, October 7, 1889.

WILLIAM FRANCIS GANONG, to be Instructor in Botany, October 28, 1889.

COLLIER COBB, to be Assistant in Geology, October 28, 1889.

LOUIS LEVERETT HOOPER, to be Assistant in Physics, October 28, 1889.

WILLIAM FORREST PILLSBURY, to be Assistant in History, October 28, 1889.

EZRA RIPLEY THAYER, to be Assistant in English, October 28, 1889.

DAVID AMES WELLS, to be Lecturer on the "Principles of Taxation," November 25, 1889.

ROBERT ELKIN NEIL DODGE, to be Assistant in English, November 25, 1889.

WALTER LOUIS JENNINGS, to be Assistant in Organic Chemistry, November 25, 1889.

HENRY CARY BADGER, to be Curator of Maps, December 30, 1889.

JOHN WHEELOCK ELLIOT, to be Assistant in Clinical Surgery, December 30, 1889.

FRANCIS BISHOP HARRINGTON, to be Assistant in Clinical Surgery, December 30, 1889.

WILLIAM MERRITT CONANT, to be Assistant Demonstrator of Anatomy, January 17, 1890.

JOHN CUMMINGS MUNRO, to be Assistant in Anatomy, January 17, 1890.

CARL FRIEDRICH RICHARD HOCHDÖRFER, to be Instructor in German, January 27, 1890.

HENRY FRANCIS SEARS, to be Assistant in Pathology for the Summer Course in 1890, April 7, 1890.

For 1890-91.

BROOKE HERFORD,
LYMAN ABBOTT,
PHILLIPS BROOKS,
WILLIAM LAWRENCE,
HENRY VAN DYKE,
} to be Preachers to the University, May 12, 1890.

HEMAN WHITE CHAPLIN, to be Lecturer on Criminal Law, March 31, 1890.
JOSEPH HENRY BEALE, to be Lecturer on the Law of Damages, April 28, 1890.
FRANK BREWSTER, to be Instructor in the Peculiarities of Massachusetts Law and Practice, May 12, 1890.

MAX POLL, to be Instructor in German, May 26, 1890.
DANIEL DENISON SLADE, to be Lecturer on Comparative Osteology, June 9, 1890.
JOHN GRAHAM BROOKS, to be Instructor in Political Economy, June 9, 1890.
JEFFERSON BUTLER FLETCHER, to be Instructor in English, June 9, 1890.
WILLIAM FRANCIS GANONG, to be Instructor in Botany, June 9, 1890.
THADDEUS WILLIAM HARRIS, to be Instructor in Geology, June 9, 1890.
JOHN JOSEPH HAYES, to be Instructor in Elocution, June 9, 1890.
LEWIS JEROME JOHNSON, to be Instructor in Engineering, June 9, 1890.
HENRY BURROWES LATHROP, to be Instructor in English, June 9, 1890.
JAMES LEE LOVE, to be Instructor in Mathematics, June 9, 1890.
ALFRED BULL NICHOLS, to be Instructor in German, June 9, 1890.
FRANK WALTER NICOLSON, to be Instructor in Latin, June 9, 1890.
WILLIAM FOGG OSGOOD, to be Instructor in Mathematics, June 9, 1890.
GEORGE HOWARD PARKER, to be Instructor in Zoölogy, June 9, 1890.
WALLACE CLEMENT SABINE, to be Instructor in Physics, June 9, 1890.
GEORGE SANTAYANA, to be Instructor in Philosophy, June 9, 1890.
WILLIAM SCHOFIELD, to be Instructor in Roman Law, June 9, 1890.
WILLIAM GOODRICH THOMPSON, to be Instructor in Forensics, June 9, 1890.
WILLIAM EMERSON RITTER, to be Assistant in Zoölogy, June 9, 1890.
WILLLIAM MCMICHAEL WOODWORTH, to be Assistant in Microscopical Anatomy, June 9, 1890.
FRANK JOHN VIETS DAKIN, to be Assistant in Fine Arts, June 23, 1890.
EDWARD HALE, to be Assistant in Homiletics, June 23, 1890.
LOUIS LEVERETT HOOPER, to be Assistant in Physics, June 23, 1890.
HENRY HUDSON, to be Assistant in Physics, June 23, 1890.
GEORGE JAMES PEIRCE, to be Assistant in Botany, June 23, 1890.
CHARLES AVERELL RICH, to be Assistant in Physics, June 23, 1890.
THEODORE WILLIAM RICHARDS, to be Assistant in Chemistry, June 23, 1890.
WILLIAM MORSE COLE, to be Instructor in Political Economy, June 25, 1890.

HENRY THOMAS SECRIST, to be Proctor, June 9, 1890.

JOHN CASSAN WAIT, to be Instructor in Surveying and Drawing, June 9, 1890.

SAMUEL HOLMES DURGIN, to be Lecturer on Hygiene, June 9, 1890.

THEODORE WILLIS FISHER, to be Lecturer on Mental Diseases, June 9, 1890.

EDWARD HICKLING BRADFORD, to be Instructor in Surgery and Orthopedics, June 9, 1890.

EDWARD MARSHALL BUCKINGHAM, to be Instructor in Diseases of Children, June 9, 1890.

ELBRIDGE GERRY CUTLER, to be Instructor in the Theory and Practice of Physics, June 9, 1890.

FRANCIS HENRY DAVENPORT, to be Instructor in Gynaecology, June 9, 1890.

HAROLD CLARENCE ERNST, to be Instructor in Bacteriology, June 9, 1890.

WILLIAM WHITWORTH GANNETT, to be Instructor in Pathology and Auscultation, June 9, 1890.

GEORGE MINOT GARLAND, to be Instructor in Clinical Medicine, June 9, 1890.

CHARLES MONTRAVILLE GREEN, to be Instructor in Obstetrics, June 9, 1890.

FRANKLIN HENRY HOOPER, to be Instructor in Laryngology, June 9, 1890.

JAMES JACKSON PUTNAM, to be Instructor in Diseases of the Nervous System, June 9, 1890.

HENRY PARKER QUINCY, to be Instructor in Histology, June 9, 1890.

HERMAN FRANK VICKERY, to be Instructor in Clinical Medicine, June 9, 1890.

JOSEPH WEATHERHEAD WARREN, to be Instructor in Physiology, June 9, 1890.

ARTHUR TRACY CABOT, to be Clinical Instructor in Genito-urinary Surgery, June 9, 1890.

EDWARD COWLES, to be Clinical Instructor in Mental Diseases, June 9, 1890.

ORLANDO WITHERSPOON DOE, to be Clinical Instructor in Gynaecology, June 9, 1890.

GEORGE WASHINGTON GAY, to be Clinical Instructor in Surgery, June 9, 1890.

FRANCIS BOOTT GREENOUGH, to be Clinical Instructor in Syphilis, June 9, 1890.

JOHN HOMANS, to be Clinical Instructor in the Diagnosis and Treatment of Ovarian Tumors, June 9, 1890.

PHILIP COOMBS KNAPP, to be Clinical Instructor in Diseases of the Nervous System, June 9, 1890.

ABNER POST, to be Clinical Instructor in Syphilis, June 9, 1890.

GEORGE HORTON TILDEN, to be Clinical Instructor in Dermatology and Syphilis, June 9, 1890.

OLIVER FAIRFIELD WADSWORTH, to be Clinical Instructor in Ophthalmoscopy, June 9, 1890.

GEORGE LINCOLN WALTON, to be Clinical Instructor in Diseases of the Nervous System, June 9, 1890.

FRANCIS SEDGWICK WATSON, to be Clinical Instructor in Genito-urinary Surgery, June 9, 1890.

HERBERT LESLIE BURRELL, to be Demonstrator of Surgical Appliances, June 9, 1890.

FRANCIS AUGUSTINE HARRIS, to be Demonstrator of Medico-legal Examinations, June 9, 1890.

WILLIAM MERRITT CONANT, to be Assistant Demonstrator of Anatomy, June 9, 1890.

WILLIAM SOHIER BRYANT, to be Assistant in Anatomy, June 9, 1890.
HERBERT LESLIE BURRELL, to be Assistant in Clinical Surgery, June 9, 1890.
JOHN WHEELOCK ELLIOT, to be Assistant in Clinical Surgery, June 9, 1890.
WILLIAM CARROLL EMERSON, to be Assistant in Chemistry, June 9, 1890.
FRANK BISHOP HARRINGTON, to be Assistant in Clinical Surgery, June 9, 1890.
GEORGE HOWARD MONKS, to be Assistant in Clinical and Operative Surgery, June 9, 1890.
JOHN CUMMINGS MUNRO, to be Assistant in Anatomy, June 9, 1890.
EDWARD REYNOLDS, to be Assistant in Obstetrics, June 9, 1890.
CHARLES LOCKE SCUDDER, to be Assistant in Clinical Surgery, June 9, 1890.
THOMAS FOSTER SHERMAN, to be Assistant in Diseases of Children, June 9, 1890.
CHARLES PRATT STRONG, to be Assistant in Gynaecology, June 9, 1890.
CHARLES WENDELL TOWNSEND, to be Assistant in Obstetrics, June 9, 1890.
FRANCIS SEDGWICK WATSON, to be Assistant in Clinical Surgery, June 9, 1890.
CHARLES FRANCIS WITHINGTON, to be Assistant in Clinical Medicine, June 9, 1890.
CHARLES POMEROY WORCESTER, to be Assistant in Chemistry, June 9, 1890.
CHARLES POMEROY WORCESTER, to be Secretary of the Medical Faculty, June 23, 1890.

FREDERICK EUGENE BANFIELD,
ALLSTON GRAY BOUVÉ,
FOREST GREENWOOD EDDY,
VIRGIL CLARENCE POND,
CHARLES HUTCHINS TAFT,
} to be Instructors in Operative Dentistry, June 23, 1890.

EDWARD EARL HOPKINS, to be Instructor in Crown and Bridge Work, June 23, 1890.
GEORGE HOWARD MONKS, to be Instructor in Surgical Pathology, June 23, 1890.
GEORGE LINCOLN WALTON, to be Instructor in Neurology, June 23, 1890.
CHARLES POMEROY WORCESTER, to be Instructor in Dental Chemistry, June 23, 1890.
DWIGHT MOSES CLAPP, to be Clinical Lecturer in Operative Dentistry, June 23, 1890.

WILLIAM PARKER COOKE,
WILLIAM HENRY POTTER,
CECIL PORTER WILSON,
} to be Clininical Lecturers in Operative Dentistry, June 23, 1890.

HENRY MICHAEL CLIFFORD, to be Demonstrator of Operative Dentistry, June 23, 1890.
PATRICK WILLIAM MORIARTY, to be Demonstrator of Mechanical Dentistry, June 23, 1890.

EDWIN HARTLEY DIXON,
WILLIAM FREDERIC GAY,
CHARLES ERNEST PERKINS,
} to be Assistant Demonstrators of Operative Dentistry, June 23, 1890.

WILBERT SOULE, to be Resident Surgeon at the Veterinary Hospital, May 12, 1890, to take effect July 1, 1890.

Statutes adopted by the Corporation (May 12) and the Board of Overseers (May 21).

1. The University. Harvard University comprehends the following departments: Harvard College, the Lawrence Scientific School, the Graduate School, the Divinity School, the Law School, the Medical School, the Dental School, the School of Veterinary Medicine, the Bussey Institution (a School of Agriculture), the University Library, the Museum of Comparative Zoölogy, the University Museum, the Botanic Garden, the Herbarium, and the Astronomical Observatory. The Peabody Museum of American Archaeology and Ethnology is a constituent part of the University; but its relations to the University are affected by peculiar provisions.

5. University Council. The University Council consists of the President, Professors, and Assistant Professors of the University and such other University officials as the Corporation with the consent of the Overseers may appoint members of the Council. It is the function of the Council to consider questions which concern more than one Faculty, and questions of University policy.

6. Faculties. Harvard College, the Lawrence Scientific School, and the Graduate School are together under the immediate charge of a Faculty, — the Faculty of Arts and Sciences. The other Schools of the University are each under the immediate charge of a Faculty. Each Faculty is composed of all the Professors, Assist-

Former Statutes.

1. The University. Harvard University comprehends the following departments: Harvard College, the Divinity School, the Law School, the Medical School, the Dental School, the Lawrence Scientific School, the Museum of Comparative Zoölogy, the Bussey Institution (a School of Agriculture), the College Library, the Graduate Department, the School of Veterinary Medicine, and the Astronomical Observatory. The Peabody Museum of American Archaeology and Ethnology is a constituent part of the University; but its relations to the University are affected by peculiar provisions.

5. Academic Council. The Academic Council consists of the President, Professors, and Assistant Professors of the University. The Council is empowered to recommend to the President and Fellows candidates for the degrees of Master of Arts, Doctor of Science, and Doctor of Philosophy.

6. Faculties. Harvard College and the several Schools of the University are each under the immediate charge of a Faculty. All Professors, Assistant Professors, and Tutors, and all Instructors appointed for a term longer than one year are members of the Faculty of the College or School in which they teach, unless exempted by a

ant Professors, and Tutors, and of all the Instructors appointed for a term longer than one year, who teach in the department or departments under the charge of that Faculty. The President is a member of each Faculty

A Faculty may, at its discretion, delegate any of its powers relating to ordinary matters of administration and discipline, except the power to inflict the penalties of dismission and expulsion, to administrative boards, nominated from among its members by the President, and appointed by the Corporation with the consent of the Overseers. Every such board shall be subject to the authority of the Faculty from which it is appointed. Any administrative board established for Harvard College shall consist of not less than fifteen members.

7. DEANS. Each Faculty has a Dean, who is appointed by the Corporation, with the consent of the Overseers, from among the members of the Faculty. Harvard College, the Lawrence Scientific School, and the Graduate School also have each a Dean, who is appointed by the Corporation, with the consent of the Overseers, from among the members of the Faculty of Arts and Sciences. Each Dean is the chief executive officer of his Faculty, College, or School, is responsible for the proper preparation and conduct of its business, and makes an annual report to the President.

9. DEGREES. The ordinary degrees of Bachelor of Arts, Bachelor of Science, Master of Arts, Civil Engineer, Doctor of Philosophy, Doctor of Science, Bachelor of Divinity, Bachelor of Laws, Doctor of Medicine, Doctor of Dental Medicine, Doctor of Veterinary Medicine, and Bachelor of Agricultural Science are conferred,

peculiar tenure of office, or by a special vote of the Corporation and Overseers.

7. DEANS. Each Faculty has a Dean, who is appointed by the Corporation, with the consent of the Overseers, from among the members of that Faculty. It is the duty of a Dean to conduct the correspondence of his College or School, to superintend all its clerical and administrative business; to prepare the business for the meetings of his Faculty, to execute its orders and regulations, to preside at its meetings in the absence of the President, and to make an annual report to the President. To assist the Dean of a College or School in the discharge of these duties, the Corporation appoints, when necessary, a Registrar or Secretary.

9. DEGREES. The ordinary degrees of Bachelor of Arts, Bachelor of Science, Bachelor of Agricultural Science, Bachelor of Divinity, Bachelor of Laws, Doctor of Medicine, Doctor of Dental Medicine, Doctor of Veterinary Medicine, Civil Engineer, and Mining Engineer are conferred, after recommendation by the several Faculties,

after recommendation by the several Faculties, by vote of the Corporation, with the consent of the Overseers. It is required that no candidate for the ordinary degrees be recommended, except after thorough public examination, and a residence at the University of at least one year. There are four grades of the degree of Bachelor of Arts, two grades of the degree of Bachelor of Laws, and three grades of the degree of Bachelor of Science.

Honorary degrees are conferred by vote of the Corporation, with the consent of the Overseers. The degrees conferred by the University are announced at Commencement.

12. Discipline. The several Faculties have authority to impose fines and levy assessments for damage done to property; to inflict, at their discretion, the penalties of admonition, suspension, dismission, and expulsion; and to use all other appropriate means of discipline; but no student shall be dismissed or expelled from the University except by a vote of at least two thirds of the members of his Faculty present and voting thereon.

Suspension is a separation from the University for a fixed period of time. It may be accompanied with a requirement of residence in a specified place, and of the performance of specified tasks. Dismission closes a student's connection with the University, without necessarily precluding his return. Expulsion is the highest academic censure, and is a final separation from the University.

by vote of the Corporation, with the consent of the Overseers. The ordinary degrees of Master of Arts, Doctor of Philosophy, and Doctor of Science, are conferred, after recommendation of the Academic Council, by vote of the Corporation, with the consent of the Overseers. It is required that no candidates for the ordinary degrees be recommended, except after thorough public examination, and a residence at the University of at least one year. There are four grades of the degree of Bachelor of Arts, two grades of the degree of Bachelor of Laws, and three grades of the degree of Bachelor of Science and of the degree of Mining Engineer.

Honorary degrees are conferred by vote of the Corporation, with the consent of the Overseers. The degrees conferred by the University are announced at Commencement.

12. Discipline. The respective Faculties have authority to impose fines and levy assessments for damage done to property; to inflict, at their discretion, the penalties of admonition, suspension, dismission, and expulsion; and to use all other appropriate means of discipline; but no student shall be separated from the University, either temporarily or permanently, by a vote of less than two thirds of the members of his Faculty present and voting thereon.

Suspension is a separation from the University for a fixed period of time. It may be accompanied with a requirement of residence in a specified place, and the performance of specified tasks. Dismission closes a student's connection with the University, without necessarily precluding his return. Expulsion is the highest academic censure, and is a final separation from the University.

Table of Schools and Colleges from which young men actually entered Harvard College from 1881 to 1890 inclusive, with the number that entered from each institution in each year. Special students are not included. An asterisk (*) indicates a public school, a dagger (†) an endowed school.

	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.
Acadia College, Wolfville, Nova Scotia	2	1	.	.	1	.	.	1	1	1
†Adams Academy, Quincy	12	13	19	11	1	2	10	2	9	2
Adelbert College of W. R. Univ., Cleveland, O.	.	1	.	.	.	.	.	.	.	1
†Adelphi Academy, Brooklyn, N. Y.	.	.	.	.	1	1	1			
†Albany, N. Y., Academy	.	.	.	1	.	.	.	2	2	
*Albany, N. Y., High School	.	1	1							
Albion College, Mich.	.	.	.	.	.	.	.	.	1	
Alfred, N. Y., University	.	.	1							
Amherst College	1	.	.	.	1	2	1	.	1	3
Andover Theological Seminary	.	.	.	.	.	1	.	.	1	1
*Arlington, Cotting High School	1	1	1	2	2	.	.	2	.	3
Atlanta University, Georgia	.	.	.	.	.	.	.	.	.	1
*Auburn, Me., Edward Little High School	.	.	.	.	.	.	.	1		
*Auburn, N. Y., High School	.	.	.	.	.	.	.	.	1	
*Augusta, Me., Cony High School	.	.	.	.	.	.	1			
Augustana College, Rock Island, Ill.	.	.	.	.	.	1	.	.	.	1
†Barre Academy	1									
Baugher's Academy, Hanover, Pa.	.	.	1							
Belmont School, Belmont, Cal.	.	.	.	.	.	4	2	.	1	
Belmont School, Belmont, Mass.	.	.	.	.	.	.	.	.	.	2
Berkeley Gymnasium, San Francisco, Cal.	.	.	1							
Berkeley School, Boston	.	.	.	.	1	.	1	1	5	3
Berkeley School, New York	1	.	1	.	6	2	6	4	4	1
Berkeley School, Providence, R. I.	.	.	.	.	.	.	.	.	1	
†Berwick Academy, South Berwick, Me	.	.	.	.	.	.	.	.	.	1
Bethany College, W. Va.	.	.	.	.	1					
Boston College	.	.	.	.	.	.	.	.	1	
*Boston English High School	.	.	.	.	.	.	4	5	4	7
*Boston Latin School	17	17	20	21	17	25	31	25	28	25
Boston University	.	.	.	1	.	2	1	.	4	
Bowdoin College, Brunswick, Me.	.	.	.	.	.	.	.	.	.	1
†Brackett Academy, Greenland, N. H.	.	1								
*Bridgewater High School	2									
†Bristol Academy, Taunton	1	1	3	.	3	.	.	1		
†Bromfield School, Harvard	.	.	.	1						
*Brookfield High School	.	.	1							
*Brookline High School	2	2	.	.	.	2	.	.	4	
Brooklyn, N. Y., Latin School	.	.	.	.	.	.	.	.	.	2
Brown, H. H., Private School, Philadelphia, Pa.	.	.	1	.	.	.	.	.	1	
Brown University, Providence, R. I.	.	1	.	.	1	.	.	.	1	1
Browne & Nichols, Private School, Cambridge	.	.	.	.	1	3	3	6	11	6
Bucknell University, Lewisburg, Pa.	.	.	.	.	.	.	.	1		
*Buffalo, N. Y., High School	.	1	.	1	.	.	.	.	2	
Buffalo, N. Y., Latin School	.	.	.	2	1	.	.	1	1	
*Buffalo, N. Y., State Normal School	.	.	.	.	.	.	.	1		
†Burr & Burton Seminary, Manchester, Vt.	.	.	.	.	.	.	.	.	1	
*Cambridge Latin School	11	8	8	5	11	14	4	14	14	13

	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.
Carleton College, Northfield, Minn.	.	.	.	.	.	.	.	.	1	2
*Castine, Me., High School	.	.	1							
Centre College, Danville, Ky.	.	.	.	.	.	.	1			
Chadwick & Pye, Boys' Prep. Sch., Brooklyn, N. Y.	.	1								
Charleston, S. C., College of	.	.	.	.	.	.	.	.	1	
Charlier Institute, New York	.	1								
Chase, R. H., Private School, Philadelphia, Pa.	.	3	2	1						
Chauncy Hall School, Boston	2	3	2	1	2	2	1	1	.	4
*Chelsea High School	2	2	.	2	.	2	2	2	4	1
*Chicago, Ill., High School	.	.	.	.	.	.	1			
Christian College, Monmouth, Ore.	.	1								
*Cincinnati, O., Hughes High School	.	.	.	.	1	.	.	.	.	2
*Cincinnati, O., Woodward High School	.	1	1	.	3	1	.	1	1	
Cleveland, O., Academy	.	.	.	2						
*Cleveland, O., Central High School	1	2	1	.	.	3	.	.	.	1
*Cleveland, O., West High School	.	1	.	1	1	.	1	1		
†Colby Academy, New London, N. H.	.	1								
Colby University, Waterville, Me.	1	.	.	.	.	.	.	.	.	1
College of the City of New York	.	.	.	.	3	.	.	2	1	1
College of Emporia, Kan.	.	.	.	.	.	.	.	.	.	1
College of New Jersey, Princeton, N. J.	.	.	.	2	.	.	.	1		
†Collegiate and Polytech. Institute, Brooklyn, N. Y.	2	1	1	1	1	.	2	.	.	3
Colorado College, Colorado Springs, Colo.	.	.	.	.	.	.	1			
Columbia College, New York	.	.	1	1	.	.	.	1	1	
Columbia College School of Mines, New York	.	.	.	.	.	.	.	1		
Columbian University, Washington, D. C.	.	1	.	.	.	.	1	1		
*Concord High School	.	3	2	.	.	.	.	2	.	1
Cornell College, Mt. Vernon, Iowa	.	.	.	.	.	.	.	.	.	1
Cornell University, Ithaca, N. Y.	.	.	.	.	.	1	.	.	.	1
†Corning, N. Y., Free Academy	.	1								
†Cushing Academy, Ashburnham	.	.	.	.	.	1				
Cutler, A. H., Private School, New York	2	1	4	1	.	2	2	1	4	3
Cutler, Edward H., Private School, Newton	.	.	.	.	.	.	.	2	5	7
Dalhousie College, Halifax, N. S.	.	.	.	.	.	.	.	.	1	3
Dartmouth College, Hanover, N. H.	.	.	.	.	.	.	.	.	1	
Dearborn Morgan School, Orange, N. J.	.	.	.	2	.	1	.	.	3	
*Decatur, Ill., High School	.	.	.	.	2					
Delaware College, Newark, Del.	.	.	.	1						
Denison University, Granville, O.	.	.	.	.	.	.	.	.	.	1
*Denver, Colo., High School	.	.	.	1	.	.	2	1		
†Derby Academy, Hingham	.	1								
Dickinson College, Carlisle, Pa.	1	.	.	.	.	.	.	.	.	1
†Dickinson High Sch. & Deerfield Acad., Deerfield	.	.	.	.	.	1				
*Dorchester High School	.	1	.	.	.	.	.	.	.	1
Drury College, Springfield, Mo.	.	.	.	.	.	.	.	1		
†Dummer Academy, South Byfield	.	.	1	.	3					
Dwight School, New York	.	.	.	.	.	.	.	.	.	1
†East Maine Conference Seminary, Bucksport, Me.	.	.	.	.	1					
Eayrs, Wm. N., Private School, Boston	.	.	.	.	.	.	.	.	2	
*Elkhart, Ind., High School	.	.	.	.	.	1				
*Ellsworth, Me., High School	.	.	.	.	.	1				
Emerson Institute, Washington, D. C.	.	1	1	4	2	.	1			
Eminence College, Ky.	.	.	.	.	.	.	.	.	1	
Episcopal Theological School at Cambridge	.	.	.	.	.	.	1	.	.	1
†Eton College, England	1	.	.	1						
Eureka College, Eureka, Ill.	.	.	.	.	.	.	.	1	.	1
*Everett High School	.	.	.	.	.	.	.	.	.	1
Everson, D. S., Collegiate School, New York	.	1	.	.	1	.	1			

	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.
*Fall River, B. M. C. Durfee High School	.	2	.	.	.	.	.	1	1	1
Fish, C. E., Private School, Worcester	.	.	.	.	.	.	.	.	1	5
Fisk University, Nashville, Tenn.	.	.	.	.	.	.	.	1		
*Fitchburg High School	.	.	.	.	.	1	1	1		
Fort Hill School, Rochester, N. Y.	.	.	.	.	.	.	1	.	.	1
*Fort Wayne, Ind., Central Grammar School	1									
*Framingham High School	.	1	.	.	1	.	.	.	.	1
Frankfurt Gymnasium, Germany	.	.	.	.	.	.	.	1		
Franklin and Marshall College, Lancaster, Pa.	1									
†Friends' Academy, New Bedford	1	.	.	2	2	1	1	2	.	1
*Gardner High School	.	1	.	.	.	.	.	1		
Georgetown College, D. C.	.	.	.	.	.	2	.	1		
Gibbens and Beach, Private School, New York	1	2	1							
*Gloucester High School	.	2	1	2	2	1	1	1	.	3
Goff, C. B., Engl. & Class. Sch., Providence, R. I.	.	.	.	.	.	.	.	1		
Griswold College, Davenport, Iowa	1									
Groton School, Groton	.	.	.	.	.	1	3	.	11	1
Grove City College, Pa.	.	.	.	.	.	.	.	.	1	
Gunnery School, Washington, Conn.	.	1	.	3	.	.	.	.	1	
Hale, Albert, Private School, Boston	.	.	.	.	.	.	.	.	3	5
Hamilton College, Clinton, N. Y.	.	.	.	1	.	1	.	1		
Hamline University, St. Paul, Minn.	.	.	.	.	.	.	.	.	1	1
Hanover College, Ind.	.	.	.	1						
†Harrow, England	.	.	.	.	.	1				
†Harry Hillman Academy, Wilkes-Barre, Pa.	.	1	.	2	.	1				
*Hartford, Conn., High School	.	1	1	.	.	.	.	1		
Harvard Graduate Student	.	.	.	1	.	.	.	1		
Harvard College Special Student	1	5	8	9	6	14	17	25	15	17
Harvard Divinity School	.	.	.	1	.	.	.	1	1	2
Harvard Medical School, Boston	.	.	.	.	1					
Harvard School, Chicago, Ill.	.	1	.	1	.	3	4	4	3	1
Harvard Veterinary School, Boston	.	.	.	.	.	.	.	.	1	
Haverford College, Pa.	2	1	1	2	1	1	1	2	1	1
*Haverhill High School	2	2	.	1	4	.	.	1	1	2
Hill School, Pottstown, Pa.	.	.	.	.	.	.	.	.	1	
*Hingham High School	.	.	.	1	.	2				
Hobart College, Geneva, N. Y.	.	.	.	2	.	.	1	2		
Holbrook's Military School, Sing Sing, N. Y.	.	.	.	.	.	.	.	1		
Hopkinson, John P., Private School, Boston	4	14	14	18	10	19	23	19	9	15
Howard College, Marion, Ala.	.	.	.	.	.	.	.	.	2	
Howard University, Washington, D. C.	.	.	.	.	.	.	.	1		
*Hyde Park High School	.	1	1	.	.	.	2			
*Hyde Park, Ill., High School	1	.	.	.	1					
Illinois State Normal University, Normal, Ill.	.	1	1	2	.	.	.	.	1	
Indianapolis, Ind., Classical School	1	1	1	.	1	1				
*Indianapolis, Ind., High School	.	.	.	.	1	1				
*Indiana State Normal School, Indiana, Pa.	.	.	.	.	.	.	.	.	.	1
Indiana University, Bloomington, Ind.	.	2								
Iowa College, Grinnell, Iowa	.	.	.	.	.	.	.	.	.	2
†Ives Seminary, Antwerp, N. Y.	.	.	.	.	.	.	1			
Jarvis Hall, Denver, Colo.	.	.	.	.	1					
Johns Hopkins University, Baltimore, Md.	.	1	.	1	.	.	.	.	1	
*Kansas City, Mo., High School	.	.	.	.	.	.	.	.	.	1
Kendall, Joshua, Private School, Cambridge	2	1	2	2	2	1	1	.	.	2
Kentucky Wesleyan College, Millersburg, Ky.	.	.	1							
Kenyon College, Gambier, O.	.	.	.	.	.	.	1	.	.	1
Keystone Academy, Factoryville, Pa.	.	.	.	.	1					
King's School, Stamford, Conn.	.	.	.	.	.	.	1	1		

	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.
Knox College, Galesburg, Ill.	.	.	1	.	.	.	.	.	.	1
Lafayette College, Easton, Pa.	.	.	.	.	1					
*Lancaster High School	.	.	.	.	.	.	.	1		
†Lawrence Academy, Groton	1									
*Lawrence High School	.	1	.	.	1	1	1			
Lawrence Scientific School, Cambridge	1	.	.	.	.	.	1	2	4	3
Lawrence University, Appleton, Wis.	.	1	.	.	.	1				
†Lawrenceville School, N. J.	.	.	.	.	.	.	3	1		
*Leominster, Field High School	.	1	.	.	.	.	.	2		
LeRoy, N. Y., Academy	.	1								
*Lexington High School	.	.	.	.	.	.	.	1		
*Louisville, Ky., Male High School	.	.	.	.	.	.	1			
*Lowell High School	3	1	2	1	2	5	1	4	2	1
*Lynn High School	1	.	1	2	3	2	2	1	3	
†McCollom Institute, Mt. Vernon, N. H.	.	.	.	.	.	.	.	1		
Madison University, Hamilton, N. Y.	.	.	.	.	.	.	.	1	.	1
*Malden High School	1	3	.	.	.	.	.	.	1	2
Marietta College, Ohio	1	.	.	.	.	.	.	.	.	2
Mass. Institute of Technology, Boston	.	.	.	.	.	.	.	.	1	
Milwaukee, Wis., Academy	.	.	.	1	.	1	1	.	1	2
*Marlboro' High School	.	.	.	2	1	1	.	.	1	1
Marlborough St. School, Boston	.	.	.	.	.	.	1			
Marston's University School, Baltimore, Md.	.	.	.	.	.	.	1	.	.	1
Maupin's University School, Ellicott City, Md.	.	.	1							
*Medford High School	.	.	.	1	.	1	.	.	2	1
*Melrose High School	1	1	.	.	.	.	.	2	1	
*Merrimac High School	.	.	.	.	.	.	1			
*Methuen High School	.	.	.	.	.	.	.	.	.	1
*Michigan State Normal School, Ypsilanti	.	.	.	.	.	.	1			
Middlebury College, Vt.	.	.	.	.	.	.	.	.	1	
*Milford High School	.	1	2	.	2	2				
*Milwaukee, Wis., High School	1	.	.	.	2	.	1	.	2	
Monmouth College, Ill.	.	.	.	.	.	.	.	.	.	1
*Montclair, N. J., High School	.	.	.	1	.	.	.	.	.	1
*Montpelier, Vt., High School	1									
Morse, J. H., Private School, New York	.	.	2	.	.	2	1	2	1	
Mt. Allison College, Sackville, N. B.	.	.	.	.	1	1	.	.	.	1
Mt. Pleasant Military Academy, Sing Sing, N. Y.	.	.	1							
Nashville, Tenn., State Normal College	.	.	.	.	.	.	1			
*Natick High School	1	.	.	.	.	2				
*Needham High School	1	.	.	.	.	1				
*Newark, N. J., High School	.	.	.	.	.	.	.	.	1	
*Newburyport, Brown High and Putnam Schools	.	.	.	.	.	1	.	1	1	
†New Church School, Waltham	.	.	.	1	.	.	.	.	.	1
*Newport, R. I., Rogers High School	2	2	.	1	2	6	1	3	1	
*Newton High School	5	4	5	4	2	5	2	4	4	5
Newton, N. J., Collegiate Institute	.	.	.	1						
New York School of Languages	.	1	1		3					
†Nichols Academy, Dudley	.	.	1							
Nichols, Wm., Private School, Boston	.	1	4	2	10	1	5	.	2	5
Noble, G. W. C., Private School, Boston	6	10	9	13	10	12	8	12	9	8
*Northampton High School	1	1								
*North Attleboro' High School	.	.	.	.	.	.	.	1		
Northwestern University, Evanston, Ill.	.	.	.	.	.	.	.	1	.	3
Oberlin College, Ohio	.	.	.	1	.	2	1	1	.	1
Ohio Wesleyan University, Delaware, O.	.	.	.	.	1	1	6	.	.	1
*Omaha, Neb., High School	.	.	1	.	.	.	.	.	.	1
Park Institute, Rye, N. Y.	.	.	.	.	.	1				

	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.
*Pawtucket, R. I., High School	.	.	.	.	.	.	.	1		
Peekskill, N. Y., Military Academy	.	.	2							
Pennsylvania College, Gettysburg, Pa.	.	.	1	.	1					
*Philadelphia, Penn., High School	.	.	.	.	.	.	1			
†Phillips Academy, Andover	3	5	11	8	8	10	6	14	12	12
†Phillips Academy, Exeter, N. H.	19	23	25	25	29	16	19	22	20	28
Pierce Christian College, College City, Cal.	.	.	.	1						
Pine Hill Theological College, Halifax, N. S.	.	.	.	.	.	.	.	.	.	1
†Pinkerton Academy, Derry, N. H.	.	.	.	.	.	.	.	1	1	
*Pittsburg, Pa., Central High School	.	.	.	.	1	.	.	1	1	
*Portland, Me., High School	.	5	.	2	1	3	2	.	1	2
*Portsmouth, N. H., High School	.	.	.	.	.	.	.	.	.	1
Proctor Academy, Andover, N. H.	.	.	.	1						
Pro-Gymnasium, Germany	.	1								
*Providence, R. I., High School	1	.	1	.	.	.	.	1	.	1
Ripon College, Wis.	.	.	.	.	.	.	.	.	.	1
Riverview Academy, Poughkeepsie, N. Y.	.	.	.	1	1	.	.	2	2	
†Rochester, N. Y., Free Academy	.	.	.	.	.	.	.	1		
Rochester, N. Y., Theological Seminary	.	.	.	.	.	.	.	.	.	1
*Romeo, Mich., High School	.	.	.	.	.	.	.	.	1	
†Roxbury Latin School	14	11	7	12	15	12	19	12	10	12
Rugby Academy, Philadelphia, Pa.	.	.	.	1						
Sachs' Collegiate Institute, New York	.	.	1	4	1	3	1	2	8	2
†St. Johnsbury, Vt., Academy	.	1	.	.	.	1	1	.	.	1
St. John's College, Fordham, N. Y.	.	.	1							
St. John's School, Manlius, N. Y.	.	.	.	.	.	2				
†St. John's School, Presque Isle, Me.	.	.	.	.	.	.	1			
St. John's School, Sing Sing, N. Y.	1	.	.	.	2					
St. Lawrence University, Canton, N. Y.	.	.	.	.	.	.	.	1		
†St. Mark's School, Southboro'	3	5	4	1	1	6	4	3	3	5
*St. Paul, Minn., High School	.	.	.	.	.	.	2			
†St. Paul's School, Concord, N. H.	4	5	9	7	2	5	10	12	8	12
St. Stephen's College, Annandale, N. Y.	1									
*Salem High School	2	2	3	5	3	3	.	1	4	
*San Francisco, Cal., Boys' High School	2	.	2	2	1	1				
School of the Lackawanna, Scranton, Pa.	.	.	1							
Shortlidge's Media Academy, Pa.	1	.	2	2	.	3	2	.	1	
Skaneateles, N. Y., Union School	.	.	1							
Smith Academy, St. Louis, Mo.	.	1	.	.	1	1	1	1	2	
*Somerville High School	3	3	6	2	3	4	5	5	5	3
Southwestern Presb. Univ., Clarksville, Tenn.	.	.	.	.	1					
*Springfield High School	.	.	.	.	.	.	.	.	.	2
*Springfield, Ill., High School	.	.	.	.	.	.	.	1		
Spring Hill College, near Mobile, Ala.	.	.	.	1	.	1				
State College of Kentucky, Lexington, Ky.	.	1								
State University of Iowa, Iowa City	1	1	.	.	.	.	.	.	1	
Stewart Academy, Reading, Pa.	.	.	1							
Swarthmore College, Pa.	1	1	.	.	.	.	.	1	1	
*Syracuse, N. Y., High School	.	.	.	.	.	.	1			
Syracuse University, N. Y.	.	.	.	1	.	.	1			
Tabor Academy, Marion	.	.	.	1	.	.	.	.	1	
*Taunton High School	.	2	2	2	.	.	.	2		
†Thayer Academy, South Braintree	.	.	4	1	.	1				
Trinity College, Hartford, Conn.	.	2	.	1	.	.	.	.	1	
Trinity School, Tivoli, N. Y.	.	.	.	.	.	1				
*Troy, N. Y., High School	.	.	.	.	1	1				
Tufts College, College Hill	.	1	.	.	.	.	1	.	1	1
†Union Academy, Belleville, N. Y.	.	.	.	.	.	.	.	.	.	1

	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.
Université de France	.	1								
University Grammar School, Providence, R. I.	.	.	.	.	.	.	.	.	.	1
University of Alabama, Ala.	.	.	.	.	.	.	.	.	.	1
University of California, Berkeley, Cal.	.	1	.	.	.	.	.	1	.	2
University of Chicago, Ill.	.	.	.	1						
University of Cincinnati, O.	.	.	.	1						
University of the City of New York	.	.	1	.	.	.	.	.	.	1
University of Des Moines, Iowa	.	.	1							
University of Georgia, Athens, Ga.	.	.	.	.	.	.	.	1		
University of Illinois, Champaign, Ill.	.	.	.	.	1					
University of Kansas, Lawrence, Kan.	.	.	.	.	.	.	.	.	.	3
University of Michigan, Ann Arbor, Mich.	.	.	.	.	3	2	1	.	2	
University of New Brunswick, Fredericton, N. B.	.	.	.	.	.	.	.	1	.	2
University of Oregon, Eugene City, Ore.	.	.	.	.	.	.	.	1		
University of Pennsylvania, Philadelphia, Pa.	1	.	.	1	1	1	1	.	1	
University of Rochester, N. Y.	.	.	1	2	.	.	1	1		
University of State of Missouri, Columbia, Mo.	.	.	.	.	.	.	.	.	.	1
University of Tennessee, Knoxville, Tenn.	.	.	1							
University of Vermont, Burlington, Vt.	.	.	.	.	.	.	.	1		
University of Virginia, Va.	.	.	.	.	.	.	.	1		
University of Wisconsin, Madison, Wis.	.	.	.	1						
University of Wooster, O.	.	.	.	.	.	.	.	.	.	2
University School, Chicago, Ill.	.	.	.	2	2	.	.	3		
University School, Petersburg, Va.	.	.	.	.	1					
University School, San Francisco, Cal.	2									
Urban School, San Francisco, Cal.	.	3	.	1	.	.	2	.	.	1
Utica, N. Y., Academy	1	.	.	1	1					
Vanderbilt University, Nashville, Tenn.	.	.	.	.	.	.	.	.	.	2
†Vermont Academy, Saxton's River, Vt.	.	.	.	.	1					
†Vermont Episcopal Institute, Burlington, Vt.	.	1	.	1	1					
*Wakefield High School	.	.	.	.	.	.	.	.	1	
*Waltham High School	1	.	.	.	.	.	1	.	.	1
Warsaw, N. Y., Union School	.	.	2	.	.	1				
Washburn College, Topeka, Kan.	.	.	.	.	.	.	.	.	.	1
*Washington, D. C., High School	.	.	.	.	.	.	.	.	.	2
*Washington Co., Vt., Grammar Sch., Montpelier	.	.	.	.	.	1				
Washington University, St. Louis, Mo.	1	.	.	.	.	1	1			
*Watertown High School	.	.	.	.	.	.	.	.	.	1
*Wellesley High School	.	.	.	.	.	.	.	.	.	1
Wesleyan University, Middletown, Conn.	3	.	.	1	.	.	.	.	.	2
†Western Reserve Academy, Hudson, O.	.	.	.	.	.	.	.	1		
*Westfield High School	.	1								
West Newton English and Classical School	.	.	.	.	.	.	2	.	1	
White & Sykes, Franklin School, Cincinnati, O.	.	1	.	4	.	3	2	3	2	3
William Jewell College, Liberty, Mo.	.	.	.	1						
†William Penn Charter School, Philadelphia, Pa.	.	.	.	.	.	1	.	1	1	3
Williams College, Williamstown	.	.	.	.	1	.	1			
†Williston Seminary, East Hampton	3	.	.	.	.	4	.	.	.	1
Wilson and Kellogg, Private School, New York	1	1	3	1	2	.	1	2	2	
*Winchester High School	.	.	.	.	.	.	1	.	1	
*Winsted, Conn., High School	.	.	.	.	.	.	.	.	1	
*Woburn High School	.	1	.	.	.	.	2	.	1	
*Woonsocket, R. I., High School	1									
†Worcester Academy	1	.	.	.	2	1	.	.	1	2
*Worcester High School	1	3	1	1	2	2	2	1	3	4
†Worcester Polytechnic Institute	.	.	.	.	.	.	.	1	.	1
Yale College, New Haven, Conn.	2	.	.	.	1	.	1	.	.	2
Private Pupils	48	53	36	37	30	36	33	31	33	54

AGE OF STUDENTS WHO ENTERED THE FRESHMAN CLASS OF HARVARD COLLEGE 1856—1890 INCLUSIVE.

Year	14–15	15–16	16–17	17–18	18–19	19–20	20–21	21–22	22–23	23–24	24–25	25–26	26–27	27–28	28–29	29–30	30–31	32–33	44–46	Average Age	No. adm.*
1856	4	16	44	34	29	7	1	4		3		2								17 yrs. 7 5/6 mos.	144
1857		6	31	27	25	8	3	3		5										17 ,, 11 1/2 ,,	108
1858		7	28	43	30	11	3	2	2	3										17 ,, 11 3/7 ,,	124
1859		6	26	56	31	14	5	3	1	1	1									17 ,, 11 ,,	144
1860		9	26	38	33	14	9	1	4	2										18 ,, 1/2 ,,	136
1861		3	24	50	23	13	3	5	1	2			1		1					18 ,, 1 1/4 ,,	126
1862		2	19	41	30	15	10	3	2				1							18 ,, 3 1/6 ,,	123
1863	1	2	22	38	36	13	5	7		2			1		1					18 ,, 4 2/5 ,,	128
1864	1		14	30	18	19	6	3	1	2	1				1	1				18 ,, 9 1/3 ,,	97
1865		5	19	51	28	23	9	1	5		1		1							18 ,, 3 1/2 ,,	143
1866		6	19	38	46	23	8		3	1										18 ,, 2 1/2 ,,	144
1867			22	56	55	24	7	9	3	1	1									18 ,, 5 1/7 ,,	178
1868			16	48	37	22	13	2	1	2										18 ,, 5 1/2 ,,	141
1869		2	15	49	52	22	11	6						1	1					18 ,, 5 1/2 ,,	159
1870		3	19	76	53	29	11	4	4	1	1			1						18 ,, 4 4/5 ,,	203
1871		6	24	59	62	28	16	4	1	1										18 ,, 3 1/3 ,,	201
1872		2	20	51	65	29	12	4	2	1				1						18 ,, 5 1/10 ,,	188
1873	1	2	19	52	76	43	17	11	3	4	2	5		1						18 ,, 10 1/4 ,,	236
1874	1	2	19	61	58	42	7	4	1	2	2	2		1						18 ,, 6 5/6 ,,	202
1875	1	1	12	78	93	49	10	7	3	4										18 ,, 6 1/6 ,,	258
1876		1	12	58	60	53	20	7	2	2	1		1							18 ,, 9 ,,	217
1877		2	16	52	80	53	23	9	6	3	1									18 ,, 9 3/5 ,,	245
1878		2	14	52	78	45	22	7	9		1									18 ,, 9 1/3 ,,	230
1879		1	16	49	86	53	19	15	4	1	1	1	1	1						18 ,, 11 ,,	248
1880		1	12	52	84	53	24	9	3	4	1	2	1	1						18 ,, 11 2/3 ,,	247
1881		3	10	38	73	55	31	10	8	1	1									19 ,,	230
1882	1	3	11	58	89	60	28	12	4	5	1	2						1		19 ,,	275
1883			17	65	100	61	23	7	7	2	2	1								18 ,, 9 1/2 ,,	285
1884	1		12	63	90	72	29	8	4	1	5	1							(45)	18 ,, 10 2/5 ,,	286
1885	2		10	63	89	56	40	6	4	4	1	2				1	1	1	1	19 ,, 1 1/7 ,,	281
1886		4	14	64	116	67	29	12	3	3	2	1	2	2			2		(44)	18 ,, 11 3/5 ,,	321
1887			8	70	109	87	26	8	12	2	2	3	4	1			1		1	19 ,, 2 3/14 ,,	334
1888			13	58	115	65	32	15	5	3	4	1	1	1			1			19 ,, 1/15 ,,	314
1889		1	13	65	112	83	23	8	3	4	4	1		2	1	1				19 ,, 0/3 ,,	321
1890			11	59	119	85	27	15	1	3	3	1			1					19 ,, 1/10 ,,	325

* On the assumption that all who ever joined each class were admitted as Freshmen.

1890–91.

PHILOSOPHY.

Primarily for Undergraduates.

INTRODUCTORY COURSES.

EVENING LECTURES. — Twelve public lectures on the History and Problems of Philosophy will be given by Professor ROYCE on Wednesday evenings during the first half-year.

1. General Introduction to Philosophy. — Logic, by Professor PALMER; Psychology, by Dr. SANTAYANA; and Metaphysics, by Professor JAMES. — Jevons' Lessons in Elementary Logic. — Murray's Handbook of Psychology. — Lotze's Outlines of Metaphysics. *Mon., Wed., Fri., at 2.* (V.)

For Graduates and Undergraduates.

SYSTEMATIC COURSES.

2. Psychology. — James' Principles of Psychology. — Recitations, theses, lectures, and illustrative experiments. *Mon., Wed., Fri., at 12.* Professor JAMES. (IV.)

3. Cosmology. — Discussion of the Principal Problems of the Philosophy of Nature, with special reference to the modern doctrine of Evolution. — Lectures and theses. *Mon., Wed., Fri., at 2.* Asst. Professor ROYCE. (V.)

1889–90.

Philosophy.

INTRODUCTORY COURSES.

1. Greek Philosophy. — Zeller's Outlines of the History of Greek Philosophy. — Lectures and essays. *Tu., Th., Sat., at 12.* Professor PALMER. (X.)

2. Logic and Psychology. — Jevons's Elementary Lessons in Logic. — Ladd's Physiological Psychology. *Mon., Wed., Fri., at 12.* Professor JAMES. (IV.)

3. Psychology and General Introduction to Philosophical Study. — *First half-year:* Ladd's Physiological Psychology. — *Second half-year:* Psychology concluded. — Elementary study of the fundamental problems of Philosophy. — Lectures on Logic. *Mon., Wed., Fri., at 3,* Asst. Professor ROYCE. (VI.)

Courses 1, 2, and 3 are recommended as a preparation for students intending to take any of the advanced courses in a subsequent year. Only one of the three can be counted for Honors.

Courses 2 and 3 are parallel courses and cannot both be counted by the same student. A student may take Courses 1 and 2 or 1 and 3; but in that case one of the two will count for him only as a half-course.

4. Ethics. — The Theory of Morals. — Lectures, theses, and private reading. *Mon., Wed., Fri., at 3.* Professor PALMER. (VI.)

5. The Philosophy of Religion; its method and principles. — Lectures and an essay. *Half-course. Wed., at 10.* Professor F. G. PEABODY. (II.)

*6. The Psychological Basis of Religious Faith. *Half-course. Tu., at 9.* Professor EVERETT. (VII.)

Course 6 can be counted for the degree only by students who also take Course 8.

HISTORICAL COURSES.†

*8. Studies in the Comparative History of Religions, particularly the Vedic religion, the Hindu philosophies, Buddhism, Mazdaism, and the Chinese religions. *Half-course. Th., Sat., at 9.* Professor EVERETT. (VII.)

[9. Greek Philosophy. — Zeller's Outlines of Greek Philosophy. — Lectures and theses. *Tu., Th., Sat., at 12.* Professor PALMER.] Omitted in 1890–91. (X.)

10. Descartes, Spinoza, and Leibnitz. — Lectures and theses. *Tu., Th., Sat., at 12.* Professor JAMES. (X.)

11. English Philosophy from Hobbes to Hume. — Lectures and theses. *Tu., Th., Sat., at 11.* Dr. SANTAYANA. (IX.)

12. The Movement of German Thought from 1770–1830. — Kant. — Fichte. — Schelling. — Hegel. — Lectures, theses, and private reading. *Mon., Wed., Fri., at 11.* Asst. Professor ROYCE. (III.)

† As the student in these courses may have a large amount of reading to do, the third hour weekly will be at the option of the instructor.

ADVANCED COURSES.

The following courses are intended for those who have already taken an introductory course in Philosophy.

4. Systematic Ethics. — The Theory of Ethics, considered constructively. — Lectures, theses, and private reading. *Mon., Wed., Fri., at 4.* Professor PALMER. (VI.)

5. English Philosophy. — Berkeley's Principles of Human Knowledge. — Hume's Treatise of Human Nature. — Reid's Essays on the Intellectual Powers of Man. — Theses and lectures. *Tu., Th., Sat., at 12.* Dr. SANTAYANA. (X.)

6. Earlier French Philosophy, from Descartes to Leibnitz, and German Philosophy from Kant to Hegel. — Lectures. *Mon., Wed., Fri., at 11.* Dr. SANTAYANA. (III.)

13. The Philosophy of Nature in its relations to Theology and Ethics. — Spinoza's Ethics. — Lectures on the history of the doctrine of Evolution. — Spencer's First Principles. — Leconte's Evolution in its Relation to Religious Thought. — Theses. *Mon., Wed., Fri., at 12.* Asst. Professor ROYCE. (IV.)

11. The Ethics of Social Reform. — The questions of Charity, Divorce, the Indians, Labor, Prisons, Temperance, etc., as problems of practical Ethics. — Lectures, essays, and practical observations. *Tu., Th., at 10.* Professor F. G. PEABODY. (VIII.)

13. Contemporary Systems. — The Philosophy of Lotze. — Lotze's Microkosmus. *Mon., Wed., Fri., at 3.* Dr. SANTAYANA. (VI.) Not given in 1890–91.

14. The Ethics of the Social Questions. — The questions of Charity, Divorce, the Indians, Temperance, and the various aspects of the Labor Question (Socialism, Communism, Arbitration, Coöperation, etc.), as problems of practical Ethics. — Lectures, essays, and practical observations. *Tu., Th., (and voluntary conferences on Sat.,) at 10.* Professor F. G. PEABODY. (VIII.)

Primarily for Graduates.

7. The Content of Christian Faith. — Lectures and essays. *Mon., Wed., Fri., at 11.* Professor EVERETT. (III.)

COURSES OF RESEARCH.

20*a*. Psychological Seminary. — Subject for the year: Pleasure and Pain. — Laboratory work. *Th., 7–9* P.M. Professor JAMES.

20*b*. Metaphysical Seminary. — Subject for the year: The Development of the Hegelian System. — Lectures, papers, and original research. *Tu., 7.30–9.30* P.M. Asst. Professor ROYCE.

20*c*. Ethical Seminary. — Subject for the year: Modern Pessimism. *Sat., 10–12.* Professor PALMER.

20*d*. Questions in Ethics for individual investigation. Professor PALMER.

PHILOSOPHICAL CONFERENCE.

Generally on the second and fourth Mondays of each month Graduate Students will meet at the house of an officer of the department, for friendly intercourse and informal discussion of philosophical subjects.

*10. The Philosophy of Religion; its history from Lessing to Schleiermacher; its methods and principles. — Lectures and essays. *Half-course. Wed., at 10.* Professor F. G. PEABODY. (II.)

COURSES FOR SPECIAL RESEARCH.

The following courses are intended for Specialists. Undergraduates will not regularly be admitted to them.

20*a*. Questions in Psychology (with laboratory work). *Mon., 7 to 9* P.M. Professor JAMES.

20*b*. The Development of the Hegelian System. — Hegel's Phänomonologie des Geistes. — Lectures and original research. *Tu., 7.30 to 9.30* P.M., *and (at the pleasure of the Instructor) Th., 3 to 5.* Asst. Professor ROYCE.

20*c*. Questions in Ethics. Professor PALMER.

Attention is also called to Course 8 in Greek (Plato and Aristotle).

HISTORY.

For Undergraduates.

1. Mediaeval and Modern European History (introductory course). *Tu., Th., Sat., at 10.* Asst. Professor CHANNING. (VIII.)

   For Juniors and Seniors Course 1 will be counted only as a half-course. Students who presented American and English history for admission to College, must attain Grade C in this course in order to have it counted for the degree.

2. Constitutional Government (elementary course). *Half-course. Tu., Th., Sat., at 9 (first half-year).* Professor MACVANE. (VII[1].)

   Course 2 is recommended for students who expect to take Course 11, 12, or 13. It is not open to students who have taken either of those courses, nor will it be counted towards the degree for Seniors.

[4. Roman History to the reign of Diocletian. *Mon., Wed., Fri., at 10.* Mr. BENDELARI.] (II.)

Omitted in 1890–91.

In order to be admitted to any of the following courses, students must have passed satisfactorily in one of the introductory courses, or must otherwise satisfy the Instructor of their fitness to proceed.

5. History of Western Europe from the Germanic Invasions to the Tenth Century, with especial reference to Institutions. *Mon., Wed., Fri., at 10.* Mr. BENDELARI. (II.)

8. History of France to the reign of Louis XIV., with especial reference to Institutions. *Tu., Th., at 3, and a third hour at the pleasure of the Instructor.* Dr. SNOW. (XII.)

9. Constitutional History of England to the Sixteenth Century. *Mon., Wed., Fri., at 11.* Dr. GROSS. (III.)

10. American History (to 1783). *Tu., Th., Sat., at 9.* Asst. Professor CHANNING. (VII.)

History.

1. Mediaeval and Modern European History (introductory to Courses 5, 6, 8, 9, 10, 11, and 12). *Tu., Th., Sat., at 10.* Asst. Professor CHANNING. (VIII.)

   For Juniors and Seniors Course 1 will be counted only as a half-course. A student who presented American and English history in his examination for admission to College, must attain Grade C in Course 1 in order to have it count towards his degree.

2. Constitutional Government (elementary course, introductory to Courses 11, 12, 13, and 17). *Half-course. Tu., Th., Sat., at 9 (first half-year).* Professor MACVANE. (VII.)

   Course 2 can be taken by Seniors only as an *extra*.

   Courses 1 and 2 are designed particularly for Sophomores and Freshmen, and are not counted for Honors. They cannot be taken after those courses to which they are intended to be introductory.

3. History of the Development of Political and Legal Institutions in Rome to the Fall of the Republic. *Wed., Fri., and (at the pleasure of the Instructor) Mon., at 10.* Mr. BENDELARI. (II.)

[4. Later Roman and Early Mediaeval History. — Development of the Frankish Constitution to the death of Charlemagne. *Wed., Fri., and (at the pleasure of the Instructor) Mon., at 10.* Mr. BENDELARI.] (II.)

Omitted in 1889–90.

Students who intend to take Course 8 will find Course 4 a useful introduction to it.

11. European History during the Seventeenth Century and the first half of the Eighteenth. *Mon., Wed., Fri., at 12.* Mr. BENDELARI. (IV.)

12. European History from the Middle of the Eighteenth Century. *Tu., Th., Sat., at 11.* Professor MACVANE and Asst. Professor CHANNING. (IX.)

13. Constitutional and Political History of the United States (1783–1861). *Tu., Th., Sat., at 12.* Asst. Professor HART. (X.)

14. General History of the United States. *Half-course. Tu., Th., Sat., at 9 (second half-year).* Asst. Professor HART. (VII[s].)

Course 14 is intended for those who desire a briefer and more general course than 13. Course 2 is required as an introduction to it. Course 14 is not counted for Honors, nor can both 14 and 13 be counted towards the degree. Students who presented American and English history in the examination for admission, must attain Grade C in Course 14 in order to have it counted towards the degree.

*15. Elements of Public International Law. — History of Treaties. *Tu., Th., Sat., at 11.* Dr. SNOW. (IX.)

Students intending to take this Course are advised to take Courses 12 and 13 by way of preparation for it.

Primarily for Graduates.

The subjects numbered 21–29 in the following list are also treated in the courses offered to Undergraduates. Members of the Graduate School electing any of these subjects have the privilege of attending the lectures of the corresponding College course. The separate exercises of the Graduate School in these cases are intended for conference and for more advanced treatment of the subject.

21. Early Mediaeval Institutions. *Mon., 4.30–6.* Mr. BENDELARI.

22. The Sources and Literature of English Constitutional History. *Mon., at 2.* Dr. GROSS.

[5. The Conflict of Christianity with Paganism. — Origin and development of the Roman Primacy to its alliance with the Holy Roman Empire, A.D. 800. *Tu., Th., at 9.* Professor EMERTON.] (VII.)

Omitted in 1889–90.

[6. The Mediaeval Church, with especial reference to its effect upon public life and upon intellectual and social progress. *Tu., Th., at 3.* Professor EMERTON.] (XII.)

Omitted in 1889–90.

8. History of Government and Administration in France from the Frankish period to modern times. *Tu., Th., and (at the pleasure of the Instructor) Sat., at 10.* Dr. SNOW. (VIII.)

Course 4 will be found a desirable introduction to Course 8.

9. Constitutional and Legal History of England to the Sixteenth Century. *Mon., Wed., Fri., at 11.* Dr. GROSS. (III.)

10. The Era of the Reformation in Europe, from the rise of Italian Humanism to the close of the Council of Trent. *Wed., Fri., at 9.* Dr. A. V. G. ALLEN. (I.)

11. European History during the Seventeenth Century and the first half of the Eighteenth. *Mon., Wed., Fri., at 12.* Mr. BENDELARI. (IV.)

12. European History from the Middle of the Eighteenth Century. *Tu., Th., Sat., at 11.* Professor MACVANE and Asst. Professor CHANNING. (IX.)

18. American History (to 1783). *Tu., Th., Sat., at 9.* Asst. Professor CHANNING. (VII.)

23. History of the government and institutions of France to the reign of Louis XIV. Dr. Snow.

Not given in 1890–91.

24. General Church History. *Mon., Wed., Fri., at 11.* Professor Emerton.

25. English Constitutional History from the Tudor period to the accession of George I. Mr. Bendelari.

Not given in 1890–91.

26. History of American Institutions to 1783. *Mon., at 12.* Asst. Professor Channing.

27. Constitutional Development of the United States. Discussion of Constitutional principles in connection with historical questions. *Fri., at 4.* Asst. Professor Hart.

28. History of Continental Europe (chiefly of France and Germany) since the Seven Years' War. *Tu., Th., Sat., at 11, Wed., at 12 (first half-year).* Professor Macvane and Asst. Professor Channing.

29. Constitutional History of England since the accession of George I. *Tu., Th., Sat., at 11, Wed. at 12 (second half-year).* Professor Macvane and Asst. Professor Channing.

30. Federal Government: historical and comparative. *Tu., Th., Sat., at 9 (first half-year).* Asst. Professor Hart. (VII[1].)

31. Leading principles of Constitutional Law: selected cases, American and English. *Tu., Th., Sat., at 9 (second half-year).* Professor Macvane. (VII[2].)

32. The historical development of International Law. *Wed., Sat., at 12.* Dr. Snow.

13. Constitutional and Political History of the United States (1783–1861). *Tu., Th., Sat., at 12.* Asst. Professor Hart. (X.)

17. General History of the United States. *Half-course. Tu., Th., Sat., at 9 (second half-year).* Asst. Professor Hart. (VII.)

Course 17 is intended for those who desire a briefer and more general course than 13. Course 2 is required as an introduction to it. No student can take both 17 and 13. Course 17 is not counted for Honors. A student who presented American and English history in his examination for admission, must attain Grade C in Course 17 in order to have it count towards his degree.

*14. Constitutional Government (Advanced Course). *Mon., Wed., Fri., at 9.* Professor Macvane and Asst. Professor Hart. (I.)

Course 14 is open to students who have passed creditably in Course 12 and at least one of the courses numbered 8, 9, 11, and 13.

*15. Elements of Public International law. — History of Treaties. *Tu., Th., Sat., at 11.* Dr. Snow. (IX.)

Students intending to take this Course are advised to take Courses 12 and 13 by way of preparation for it.

*16. Studies in the Comparative History of Religions (particularly the Vedic Religion, the Hindu Philosophies, Buddhism, Mazdaism, and the Chinese Religions). *Half-course. Th., Sat., at 9.* Professor Everett. (VII.)

*20. Special Advanced Study and Research. — In addition to the foregoing courses opportunities will be afforded to com-

Courses of Research.

20*a*. Church and State in the Middle Ages: Seminary. *Mon., Th., at 3.* Professor Emerton.

20*b*. The History of Local Government during the Middle Ages, especially in Great Britain: Seminary. *Mon., at 3, Wed., at 2, Fri., at 12.* Dr. Gross.

20*c*. English History in the period of the Long Parliament: Seminary. Mr. Bendelari.
Not given in 1890–91.

20*d*. Studies in the History of England and France, 1775 to 1800: Seminary. Professor Macvane.

20*e*. Seminary in American History. *Mon., 7.30–9.30.* Asst. Professors Channing and Hart.

20*f*. Seminary in the History of American Diplomacy. *Th., Sat., at 9.* Dr. Snow.

The Historical Conference.

Meetings of instructors and students engaged in Seminary work will be held at stated times for the reading of papers and for the discussion of matters of common interest.

Knowledge of German will be of advantage in any of the courses in History; and ability to make use of French text-books will be presumed.

Note. — For instruction in Semitic, Greek, and Roman history, see Courses 6, 12, 14, and 15 under Semitic Languages and History, Course 12 under Greek, Course 6[1] under Latin, and Course 23 under Classical Philology. Attention is also called to the following courses, as having a bearing on the study of history: Semitic 13, 16, Greek 11, German 6, 7, French 7–12, Italian 4, Philosophy 8, 12, Political Economy 3, 4, 6, 7, 8, 9, Roman Law, Fine Arts 3, 4, Music 3.

petent students for the investigation of special topics, under the guidance of the Instructors named below. Work done under this provision may be counted as a full course or as a half-course, as the Instructor may determine.

(*b*) Dr. Gross: Topics in Mediaeval Municipal History. *Wed., Th., 2 to 3.30.*

(*c*) Professor Macvane: The Social Condition of Europe in the 18th Century.

(*d*) Asst. Professor Hart: Topics in American History. *Wed., Fri., at 10.* (II.)

(*e*) Asst. Professor Channing: Topics in American History and in Modern Diplomatic History.

(*f*) Dr. Snow: History of Diplomacy since 1815. *Mon., Fri., at 11.*

Undergraduates wishing to take any of the advanced courses in History are required to have passed satisfactorily in a suitable introductory course, or otherwise to satisfy the Instructor of their fitness to proceed.

Knowledge of German will be of advantage in any of the courses in History; and ability to make use of French text-books will be presumed.

Note. — For instruction in Semitic and in Greek history, see Courses 6, 13, and 15 under Semitic Languages and History, and Course 12 under Greek. Attention is also called to the following courses, as having a bearing on the study of history: Semitic 14, Greek 11, Latin 13, German 6, 7, French 4, 5, 6, Philosophy 6, Political Economy 3, 4, 6, 8, 9, Roman Law 1, Fine Arts 3, 4, Music 3.

GEOLOGY.

Primarily for Undergraduates.

1. Meteorology. — Lectures, recitations, written exercises, and laboratory work. *Half-course. Mon., Wed., Fri., at 9 (first half-year).* Professor DAVIS. (I^1.)

2. Physical Geography. — Lectures, recitations, written exercises, and laboratory work. *Half-course. Mon., Wed., Fri., at 9 (second half-year).* Professor DAVIS. (I^2.)

Courses 1 and 2 together constitute a general course in elementary physical geography and meteorology.

4. Elementary Geology. — Lectures. — Dana's Manual of Geology. *Half-course. Wed., Fri., and (at the pleasure of the Instructor) Mon., at 12.* Professor SHALER. (IV.)

Course 4, if taken by a Senior, will not be counted towards the degree.

4*a*. Elementary Geology. — Laboratory and field exercises, with occasional lectures. *Half-course. Lectures:* I. *Mon., Wed., 10–12.* II. *Mon., Wed., 2–4.* III. *Tu., Th., 9–11.* IV. *Tu., Th., 11–1.* V. *Tu., Th., 2–4.* VI. *Fri., 2–4.* Dr. HARRIS. (IV.)

Course 4*a* is open to those only who take or have taken Course 4. It is designed especially for students who intend to take Course 8 in a subsequent year, and as the number of students in the course is necessarily limited, preference will be given to those who intend to take Course 8.

Courses 1, 2, 4, and 4*a* are intended for beginners and for those who wish to get a comprehensive view of these subjects. They are open to Freshmen.

Geology.

1. Physical Geography and Meteorology (elementary course). — Lectures and laboratory work. *Mon., Wed., Fri., at 9.* Asst. Professor DAVIS. (I.)

*20. Physical Geography and Meteorology (second course). — Lectures and reports. *Twice a week.* Asst. Professor DAVIS.

Course 20 is intended for students who have taken Course 1. The work of the course will include special investigation of selected topics by the students.

4. Geology. — Lectures. — Dana's Manual of Geology. *Half-course. Wed., Fri., and (at the pleasure of the Instructor) Mon., at 12.* Professor SHALER. (IV.)

Course 4 can be taken by Seniors only as an *extra.*

4*a*. Geology. — Laboratory and field exercises. *Half-course.* Mr. HARRIS.

Course 4*a* is open to those only who take or have taken Course 4. It is designed especially for students who intend to take Course 8 in a subsequent year, and as the number of students in the course is necessarily limited, preference will be given to those who intend to take Course 8.

Courses 1, 4, and 4*a* are intended for beginners and for those who wish to get a comprehensive view of these subjects. They are open to Freshmen.

*8. Second Course in Geology (with field work). *Mon., Wed., Fri., at 10.* Professor SHALER, Asst. Professor DAVIS, and Dr. WOLFF. (II.)

Course 8 is adapted for students who have already taken Courses 4 and 4*a*.

For Graduates and Undergraduates.

*8. General Critical Geology.—Lectures, field work, and theses. *Mon., Wed., Fri., at 10.* Professors SHALER and DAVIS, and Dr. WOLFF. (II.)

Course 8 is adapted for students who have already taken Course 4 and either 4*a* or the elementary course in the Summer School of Geology. Students taking this course should keep Thursday or Friday afternoon or Saturday morning free for field work.

*9. Structural and Dynamical Geology of the stratified rocks. — Lectures, reading, and theses. *Wed., at 4. Half-course.* Dr. HARRIS.

Open to those only who have taken Course 8 or the advanced course in the Summer School.

*14. Palaeontology. — Lectures, laboratory work, and theses. *Wed., Fri., and (at the pleasure of the Instructor) Mon., at 9, and laboratory work.* Professor SHALER. (I.)

Course 14 is open to those only who have taken Geology 4, Botany 1, and Zoölogy 1.

*22. Petrography. — Lectures, laboratory work, and theses. *Tu., Th., at 11.* Dr. WOLFF.

Open to those only who have taken Course 4 and Chemistry 2. The second half of Chemistry 7 is also recommended in preparation for this course.

[*18. Economical Geology. *Mon., Tu., Wed., Th., at 11 (second half-year).* Professor WHITNEY.] (III².)

Omitted in 1890–91.

Primarily for Graduates.

15. Historical Geology (with laboratory work). *Twice a week.* Professor SHALER.

25. Mineral Veins and Metalliferous Deposits: their mode of occurrence, and theories of their origin. *Half-course. Wed., Fri., at 11 (first half-year).* Professor WHITNEY. (III¹.)

*15. Historical Geology (with laboratory work). *Twice a week.* Professor SHALER.

*16. Geological field work; for training in the principles of Geological Surveying, with work in the field and in the preparation of reports. Professor SHALER, Asst. Professor DAVIS, Dr. WOLFF, and Mr. HARRIS.

*18. Economical Geology. *Mon., Tu., Wed., Th., at 11 (second half-year).* Professor WHITNEY.

22. Petrography. Lectures and theses. — Laboratory work. *Mon., Tu., Wed., Th., at 11 (first half-year).* Dr. WOLFF. (IX.)

Course 22 is open to those only who have taken Course 4 and Chemistry 2.

[*25. Mineral Veins and Metalliferous Deposits: their mode of occurrence, and theories of their origin. *Half-course. Mon. at 11.* Professor WHITNEY. (III.)

Omitted in 1889–90.

Professors SHALER and DAVIS and Dr. WOLFF will oversee and direct the work, in the field or library, of advanced special students in Geology.

Courses of Research.

20a. Physical Geography and Meteorology (second course). — Lectures and reports. *Th., at 9, and a second hour at the pleasure of the Instructor.* Professor Davis.

This course is adapted for students who have already had some instruction in Physical Geography and Meteorology. The work of the course will include special investigation of selected topics by the students.

20b. Advanced geological field work; for training in the principles of Geological Surveying, with original investigation in the field and practice in the preparation of reports. Professors Shaler and Davis, Drs. Wolff and Harris.

Open to those only who have passed satisfactorily in Course 8 and in Chemistry *C* (first half) or Chemistry 2; and who have also attended the advanced course in the Summer School of Geology. Students in this course attend the meetings of the Geological Conference on Tuesday evenings.

20c. Palaeontology (second course). Professor Shaler.

Open to those who have already studied Palaeontology and Zoölogy.

20d. Petrography (second course). Individual research in the field and laboratory. Dr. Wolff.

Geological Conference.

The instructors in this department meet the more advanced students in the various courses on Tuesday evenings from November to April for the presentation of theses and reports on subjects investigated by the members, with informal comment and discussion by those present. At each meeting there will be one leading paper on a subject announced at a previous meeting; discussion will be directed chiefly to the subject thus presented. There will also be brief statements on work in progress, and comments on new publications and other matters of interest.

"BOSTON, June 5th, 1890.

To the President and Fellows of Harvard College, Cambridge.

GENTLEMEN: The deeds of Miss Willard's estate will be passed to you to-day, and with them my wish in regard to it.

The estate henceforth belongs to the College, without any condition or restriction whatsoever, and for use in any way which the Corporation may see fit.

My hope is that the ground will be used for the present as a playground for the students, and that, in case you should need the ground by and by for other purposes, another playground will be given to the students.

But the gift is absolutely without condition of any kind.

The only other wish on my part is that the ground shall be called "The Soldier's Field," and marked with a stone bearing the names of some dear friends, — alumni of the University, and noble gentlemen, — who gave freely and eagerly all that they had or hoped for, to their country and to their fellowmen in the hour of great need — the war of 1861 to 1865 in defence of the Republic.

JAMES SAVAGE, Jr.,	STEPHEN GEORGE PERKINS,
CHARLES RUSSELL LOWELL,	JAMES JACKSON LOWELL,
EDWARD BARRY DALTON,	ROBERT GOULD SHAW.

This is only a wish, and not a condition; and, moreover, it is a happiness to me to serve in any way the College, which has done so much for us all.

I am, with much respect,

Very truly yours,

HENRY L. HIGGINSON."

CHANGES IN THE QUINQUENNIAL.

On the 9 Dec., 1889, the Corporation adopted, with some modifications, a series of changes in the matter and form of the catalogue, recommended by the Academic Council. The following are the changes made under these instructions: 1. Judgeships in territorial courts were not recognized. 2. Major Generals, U. S. A. [and U. S. Vol.], and those of higher rank (not by brevet), and Rear Admirals U. S. N., and those of higher rank, were indicated. 3. The names of holders of office were not capitalized. 4. The names of clergymen were not italicized. 5. A prefatory note explaining the method and scope of the catalogue was inserted. 6. *All* degrees received by graduates of any department of this University, were inserted (so far as known), whether received before or after graduation. 7. Degrees *honoris causa* were distinguished as such, degrees *ad eundem* being for this purpose regarded as honorary, owing to the impossibility of distinguishing between them in the case of degrees conferred by other institutions. 8. The mention of honorary degrees received from other colleges was omitted if the recipient requested such omission. 9. The date and fact of graduation from professional schools which confer no degrees, such as the Military Academy at West Point, Andover Theological Seminary, etc., were inserted. 10. Professional appointments under the U. S. Government and other national governments were recorded. 11. The position of head-master or principal in leading secondary schools, both public and endowed, and also the position of masters in the same having charge of special departments of study, was indicated. 12. The office of State Superintendent of Education (or similar

office), and that of Superintendent of Schools in cities of not less than 50,000 inhabitants, was indicated. 13. Membership in the Massachusetts Medical Society was not recorded, and membership in the National Academy of Sciences was inserted. Besides this society, and the American Academy of Arts and Sciences, the American Philosophical Society, and the Massachusetts Historical Society, membership in which was noted according to custom, membership other than resident in a number of leading American societies, and membership in certain leading foreign societies was recorded. The societies to be recognized were selected by a committee of the Academic Council. This closes the list of changes made by recommendation of the Academic Council.

A few other changes suggested by myself in a letter of June 8th, 1889, were approved by the Corporation and carried into effect. 1. An index to the lists of officers was inserted just before the index to graduates. 2. A list of Deans of the College and of the Schools was inserted. 3. In recording the Professors, the name of the chair held was placed after the name of the person, and brief historical notes concerning the foundation of professorships were inserted. 4. Elected Overseers who were alumni have the title of their office placed after their names in the alumni list. 5. Instructors appointed without limit of time, or for a longer term than one year, have their office indicated in the alumni list. 6. When graduates of this University have received honorary degrees from the University their names are inserted in the list of those who have received honorary degrees, but the full record appears only in the alumni list, under the year of graduation.

Subsequently, upon later suggestions, a list of Acting Presidents, and a list of Assistants, was inserted.

Advantage was taken of the translation to do away with antiquities; to give greater clearness to the designation of other colleges, etc.; to revise the arrangement and punctuation, and to facilitate reference as much as possible.

The historical matter introduced into the last issue was rewritten and increased; the origin of the College was indicated by extracts from the Records of the Colony of Massachusetts Bay, and the bequest of Harvard was explained by fac-similes from College records and from "New England's First Fruits."

When graduates of the College had graduated from the Divinity School before the degree of Bachelor of Divinity was required, the fact had never before been noted in the alumni list, and as it was not referred to in the Index there was no way of finding whether a Bachelor of Arts had graduated from the Divinity School, except by reading the Divinity list. In this issue the fact of graduation and the year is indicated in the alumni list.

In the school lists, the insertion of M.D., LL.B., etc., after each name has been abandoned as useless.

The section "Doctor of Philosophy, etc." has been entirely rearranged, so that it is now possible to tell at once what degree each man has received.

The great amount of new matter made it necessary to use a smaller type, whereby the increase in bulk of the book is no more than usual. Many experiments were made, and the size and cut chosen was thought to satisfy all requirement better than any other. Many small typographical changes have been made throughout the work.

WM. H. TILLINGHAST, *Editor.*

NUMBER OF ORDINARY DEGREES IN 1890.

Bachelors of Arts of the Class of 1890	282
Bachelors of Arts out of course	10
Bachelors of Science	7
Bachelor of Divinity	1
Bachelors of Divinity and Masters of Arts	3
Bachelors of Laws	30
Bachelors of Laws and Masters of Arts	18
Bachelors of Laws out of course	4
Doctors of Medicine	65
Doctors of Medicine and Masters of Arts	3
Doctors of Dental Medicine	15
Doctor of Dental Medicine out of course	1
Doctors of Veterinary Medicine	6
Masters of Arts	30
Doctors of Philosophy and Masters of Arts	8
Total	473

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TREASURER'S STATEMENT.

1890.

TREASURER'S STATEMENT.

To the Board of Overseers of Harvard College: —

The Treasurer of the College submits the Annual Statement of the financial affairs of the University, for the year ending July 31, 1890, in the usual form.

The Funds separately invested, with the income thereof, are as follows: —

UNIVERSITY.	Principal. July 31, 1890.	Income.
John Cowdin Fund,		
Real Estate in Boston,	$22,000.00	$1,634.14
Walter Hastings Fund (part of),		
Real Estate in Cambridge,	20,000.00	600.24
John L. Russell Fund (part of),		
Real Estate in Salem, } sold during the		188.00
10 shares Hingham Nat'l Bank, } year,		17.50
COLLEGE.		
Stoughton Scholarship (part of),		
Real Estate in Dorchester,	1,294.30	
Pennoyer Scholarships (part of),		
Pennoyer Annuity in England,	4,444.44	245.52
Jonathan Phillips Gift,		
Mortgages,	10,000.00	500.00
Daniel H. Peirce Fund,		
Mortgage,	13,286.60	661.02
Samuel Ward's Gift,		
Ward's (Bumkin) Island, Boston Harbor,	1,200.00	50.00
Scholarships of the Class of 1856,		
$10,000 Frem., Elkhorn & Mo. Valley R. R. 6's,	10,000.00	600.00
Charles Haven Goodwin Scholarship,		
Personal Note,	6,000.00	300.00
LIBRARY.		
Charles Minot Fund (part of),		
$60,000 Buffalo, Bradford, & Pittsb. R. R. 7's,	60,000.00	4,200.00
Ichabod Tucker Fund (part of),		
Policy of Mass. Hospital Life Insurance Co.,	5,000.00	200.00
MUSEUM OF COMPARATIVE ZOÖLOGY.		
Agassiz Memorial Fund (part of),		
Advances for new building, &c.,	21,784.13	995.45
Amounts carried forward,	$175,009.47	$10,191.87

Amounts brought forward, . . .	$175,009.47	$10,191.87
OBSERVATORY.		
Uriah A. Boyden Fund (part of),		
35 shares East Boston Ferry Co., ...	1.00	
SPECIAL FUNDS.		
Bussey Trust,		
Real Estate, ...	13,092.80	24,046.12
Robert Troup Paine Fund (accumulating),		
$31,500 Massachusetts 5's, ...	35,972.50	1,532.78
Fund of the Class of 1834,		
Policy of Mass. Hospital Life Insurance Co., . .	1,000.00	40.00
Fund of the Class of 1853,		
Policies of Mass. Hospital Life Insurance Co., . .	3,625.00	105.00
Price Greenleaf Fund.		
$43,500 Consolidated R. R. of Vermont 5's, ...	38,280.00	2,175.00
12,200 Rutland R. R. 6's, ...	12,932.00	732.00
37,200 Rutland R. R. 5's, ...	34,968.00	1,860.00
1,000 Cheshire R. R. 6's, ...	1,110.00	60.00
46,500 Ogdens. & L. Champ. R. R. 6's, ...	46,500.00	2,790.00
23,800 Ogdens. & L. Champ. R. R. income 6's, . .	10,234.00	
6,000 Ogdens. & L. Champ. R. R. Sinking Fund 8's (paid during the year), ...		480.00
3,000 Boston & Lowell R. R. 7's, ...	3,390.00	210.00
31,000 Michigan Central R.R. 8's (paid during year),		1,240.00
8,000 Michigan Air Line R. R. 8's, ...	8,560.00	640.00
3,000 Chicago, Burl. & Quincy R. R. 4's, ...	2,880.00	120.00
4,000 Chicago, Burl. & Northern R. R. 5's, . . .	4,000.00	200.00
23,000 Union Pacific Railway 6's, ...	25,990.00	1,380.00
290 shares Northern R. R. (N. H.), ...	29,290.00	1,740.00
73 " Cheshire R. R. preferred, ...	8,614.00	401.50
800 " Rutland " "	28,000.00	1,600.00
40 " Ogdens. & L. Champ. R. R., ...	680.00	
317 " Boston & Maine "	54,333.33	1,976.00
95 " Eastern R. R. (sold during the year), .		878.75
360 " Boston & Lowell R. R., ...	46,800.00	2,520.00
140 " Fitchburg R. R. preferred, ...	14,175.00	280.00
355 " Old Colony "	63,190.00	2,485.00
142 " Chicago, Burl. & Quincy R. R., . . .	19,141.60	639.00
20 " N.Y. Central & Hudson River " . . .	2,260.00	90.00
292 " Michigan Central " . . .	28,032.00	1,460.00
122 " Union Pacific Railway, ...	7,161.40	
52 " West End Street Railway, ...	4,330.00	208.00
50,000 Metropolitan Tel. & Tel. Co. 1st M. 5's, . .	49,979.17	2,500.00
Lawrence Manufacturing Co.'s Note, ...	30,000.00	600.00
Lowell " " "	30,000.00	693.75
United States Hotel Co.'s Notes, ...	86,000.00	3,440.00
Mortgages, ...	11,500.00	640.00
Deposit with New England Trust Co., ...	16,513.21	225.67
Totals, ...	$1,347,544.48	$70,180.44

The other Funds are invested as a whole. The general investments are stated in detail on pages 24 and 25 of this report, but the usual summary statement of them, with the income thereof, is as follows: —

Investments.	Principal, August 1, 1889.	Principal, July 31, 1890.	Income.
Notes, Mortgages, &c.,	$480,279.50	$564,713.40	$34,849.47
Railroad Bonds and Premiums,	2,569,377.29	2,578,663.92	122,832.99
Railroad Stock,	387,515.33	419,592.00	16,274.50
Union Stock Yard & Transit Co.,	28,062.50	28,062.50	2,250.00
Sundry Bonds,	99,500.00	100,750.00	4,625.00
Bank Stock,	63,964.00		2,686.16
Manufacturing Stock,	96,262.29	60,738.54	6,871.00
Real Estate,	1,425,957.44	1,671,090.56	78,353.48
Unimproved Lands,	71,606.29	41,568.38	
Brattle Street Reversion,	1,000.00	1,000.00	
Advances to Dental School,	2,216.40		132.98
" " Bussey Trust,	40,266.13	37,513.76	1,978.90
" " Dining Hall Association,	25,732.16	24,232.16	1,543.93
" " University Lands,	38,930.36	69,248.18	2,380.84
" " Observatory,		200.47	
" " Observatory, Real Estate,	1,616.84	1,197.68	80.84
" " Lawn Tennis Association,	250.00	250.00	
" " School of Veterinary Medicine,	17,237.19	16,848.84	1,034.28
Baring Brothers & Company,	744.83	744.83	
Term Bills due in October,	99,646.40	105,764.16	
Term Bills overdue,	2,136.48	2,262.38	
Cash in Suffolk National Bank,	75,302.13	42,672.69	
Cash in hands of Bursar,	12,209.39	7,196.03	
Totals of general investments,	$5,539,812.95	$5,774,310.48	$275,894.32
Totals of special investments,	1,334,233.30	1,347,544.48	70,180.44
Amounts,	$6,874,046.25	$7,121,854.96	$346,074.76

During the year the new gifts for capital account and the proceeds of sales of bank stocks have been invested in the best productive real estate and in corporation notes. Important changes of the investments in railroad stocks and bonds have been made, chiefly for greater safety, but the amount so invested at the end of the year was about the same as at the beginning. The book valuation of unimproved lands in Cambridge has been diminished as heretofore by crediting to that account $30,037.91 as the net gain, over cost, from sales of various stocks and of

the St. Paul, Minneapolis & Manitoba R. R. bonds. All premiums received or paid on railroad bonds sold and bought for the general investments have been carried to the account of advances for railroad bond premiums, and that account has been credited with the sum of $28,213 as the fair yearly repayment from income on account of premiums advanced.

The net income of the general investments ($275,894.32) has been divided at the rate of $4\frac{94}{100}$ per cent among the Funds to which they belong, after allowing to the Carey Building Fund and the Botanical Building Fund a special rate of four per cent on their balances during the period of construction, and to the more recent Construction Funds, to the Bruce Fund, and to the Fund for the Semitic Collection a special rate of three per cent. The fraction, which was $453.08, has been placed as usual to the credit of the University account.

The rate of income compared with that for 1888–89 shows a loss of seventeen one hundredths of one per cent, due chiefly to permanent causes mentioned in the last Annual Statement, but also in part to a temporary loss of income occasioned by improvements upon productive real estate.

The following table shows the income available for the departments dependent upon the College proper, and the expenditures in those departments: —

Interest on Funds for			
University Salaries and Expenses, ...		$31,835.65	
Library Salaries and Expenses (not books), . .		23,388.05	
College Salaries and Expenses, ...		37,736,18	
Gymnasium, and repairs on College buildings, .		none.	
College Term Bills, ...		244,485.57	
Sundry receipts, as follows: —			
Gifts for Salaries, etc., ...	$955.00		
Use of rooms, etc., ...	855.01		
Laboratory fees, etc., ...	19,077.11		
Repayments for printing, sales, etc.,	11,721.44		
		32,608.56	
			$370,054.01

Expended for		
University Salaries and Expenses, ...	$55,444.49	
Library Salaries and Expenses (not books), ...	29,917.81	
College Expenses, ...	74,779.00	
College Salaries, for instruction, ...	183,366.56	
Gymnasium Expenses, ...	10,146.05	
Repairs and insurance on College buildings not valued on Treasurer's books, ...	10,829.41	
		364,483.32
Balance, which has been carried to Stock Account, to repay in part former deficits, ...		$5,570.69

For the University, College, and Library accounts there has been a large increase of income, chiefly from more tuition fees and the rooms of Walter Hastings Hall, and partly from the recent bequests of John L. Russell, Increase Sumner Wheeler, and Stanton Blake. The expenditure also has been much larger than heretofore, for salaries and for the many other needs of a growing institution. After adding the income of the Stock Account to its capital to make good in part former deficits, and using $6500 of income to repay a part of the advances for University Lands, there has been a nominal surplus of $5570.69, from which must be taken $5037.40 to pay the cost of the Summer Courses for 1890. For the year, therefore, the real surplus has been $533.29. For 1888–89 the surplus was $90.56.

For the Divinity School there has been a deficit of $1628.66, caused by larger expenditure for repairs and improvements and for general purposes, and in spite of increased income. For 1888–89 the deficit was $726.12.

The Law School, owing chiefly to more tuition fees, has had a surplus of $12,193.93, of which $1000 was a gift to be spent in 1890–91. For 1888–89 the surplus was $6525.86.

The Medical School has had a nominal surplus of $326.12; but after setting aside a gift of $1000 for a special use, received but not spent within the year, there has been a real deficit of $673.88. For 1888–89 the real surplus was $34.91.

The Dental School has had a surplus of $2335.38, which has paid off the debt of the School and left a credit balance

of $118.98. For 1888–89 the surplus of $2895.27 was used to reduce the debt.

For the Lawrence Scientific School there has been a much greater income from tuition fees, and a greater outlay for instruction. The surplus for the year has been $4053.31. For 1888–89 the surplus was $997.62.

The Museum of Comparative Zoölogy has spent all the income of its restricted Funds as required by the conditions of gift, and has used the surplus income of the Agassiz Memorial Fund as heretofore to pay interest upon, and to repay in part, the principal of the advances from the Memorial Fund, which were used to extend the Museum building and to buy fossils.

For the general account of the Observatory there has been less income and a reduced expenditure, resulting in a deficit of $546.76, which has created a debt of $200.47. For 1888–89 there was a deficit of $1837.11. The large outlays from the Boyden Fund have been made partly out of its capital, as authorized by Mr. Boyden's will. During the year both receipts and payments for the Draper Memorial have been very large.

The Bussey Institution has had a surplus of $2473.14, due partly to increased returns from the Bussey stores. For 1888–89 the surplus was $1639.91.

For the Veterinary School a surplus of $388.35, due chiefly to larger receipts from its Hospital and Forge, has been used to reduce its debt. For 1888–89 there was a deficit of $123.92.

Gifts have been received during the year as follows: —

GIFTS TO FORM NEW FUNDS OR INCREASE OLD ONES.

From John O. Sargent, $112, as the nucleus of a permanent fund for prizes.

From William W. Goodwin, $6000, to found the Charles Haven Goodwin Scholarship, "in memory of Charles Haven Goodwin, a graduate of Harvard College, of the Class of 1888."

From Mrs. Anna Van Nest Gambrill, $10,000, to found the Richard Augustine Gambrill Scholarship, "in memory

of Richard Augustine Gambrill, a graduate of Harvard College in the Class of 1872 and of the Law School of Harvard University."

From the trustee under the will of John L. Russell, of Salem, $1000, the amount of Mr. Russell's bequest to the Divinity School, as a testimony of his gratitude and regard, and real estate and securities to the value of $25,370.03 as his residuary legacy to the College, of which the sum of $2000 is "to be specially devoted to the Botanic Garden and to the Herbarium."

From the estate of J. Ingersoll Bowditch, $6000, "to form a fund, the income of which shall be expended under the direction of the Professor of Physiology for the promotion of original investigations in the Physiological Laboratory of the Harvard Medical School," and $2500 for the use of the Observatory.

From William S. Dexter, as agent for an unknown friend of the University, $200,000, for the Retiring Allowance Fund.

From Waldo Higginson, $6000, to found the George B. Sohier Prize Fund.

Additional subscriptions to raise the standard of Medical Education, paid to August 1, 1890, from

Frederick L. Ames	$1,000	H. H. Hunnewell	$1,000
T. O. H. P. Burnham . . .	500	E. V. R. Thayer	500
William Endicott, jr. . . .	1,000	John E. Thayer	500
John L. Gardner	4,000	Nathaniel Thayer	1,000
Augustus Hemenway . . .	500	Miss Anne Wigglesworth .	500
			$10,500

From the trustees under the will of Daniel Treadwell, the additional sum of $1400, on account of Professor Treadwell's residuary legacy for the use of the College Library.

From Edward Russell, $200, to increase the Scholarship founded by him.

From Henry Villard, the fourth instalment of $5000, on account of his subscription towards the Law School Book Fund.

From Samuel S. Shaw, Secretary of the Class of 1853, $1000, to be added to the Fund of the Class of 1853.

From Miss Anna C. Lowell, $1000, to be added to the Lowell Fund for a Botanic Garden.

From Miss Helen C. Bradlee, $200, to be added to the Fund for Religious Services.

From Moses P. White, $1000, to be added to the Fund of Scholarships and Beneficiary money returned.

The total amount of these gifts for capital account is $277,282.03, as is also stated on page 20 of this report.

GIFTS FOR IMMEDIATE USE.

From George W. Wales, $200, for books for the Library, in continuance of former gifts for the same purpose.

From an anonymous friend, his annual gift of $500, to increase the salary of the Professor of Entomology.

From Mrs. Henry Draper of New York, an additional sum of $10,000, to be expended by the Director of the Observatory in prosecuting the researches in the photography of stellar spectra, with which the late Dr. Henry Draper's name is honorably associated.

From John Lowell, on behalf of himself and Mrs. Lowell, $400, as the fifth yearly payment for the support of two Scholarships to be known as the George Emerson Lowell Scholarships.

From the Dante Society, the additional sum of $25, for the purchase of books on Dante.

From Mrs. C. M. Barnard, $600, as her annual gift for the Warren H. Cudworth Scholarships.

From William G. Farlow, his annual gift of $450, towards the salary of the Assistant in the Cryptogamic Herbarium.

From John O. Sargent, one $100 prize, for the best metrical version of the twenty-ninth Ode of the third Book of Horace, in continuance of former gifts for a like purpose.

From Andrew P. Peabody, $200, for prizes to be given to students in the Semitic languages for the academic year 1890–91.

From Waldo Higginson, $250, for the George B. Sohier Prize for the academic year 1889–90.

From Theodore Lyman, $1266.03, to make good the amount expended by the College for the completion of the Johnston gate-way.

From an anonymous friend, $20, for special use in connection with the Johnston gate-way.

From the Society for Promoting Theological Education,

$406.69, to be applied to the remodelling of the interior of Divinity Hall according to plans approved by the Faculty.

From the trustees under the will of Walter Hastings, $36,000 additional, for the erection of a dormitory on the grounds of Harvard College, to be called Walter Hastings Hall.

From Henry F. Sears, $35,000, to be used in erecting an addition to the Medical School building for the departments of Pathology and Bacteriology.

From Henry Astor Carey, $11,000, to be added to his former gift of $25,000 for the erection of a building for athletic purposes.

Additional subscriptions towards Professor Cooke's addition to the University Museum, paid to August 1, 1890, from

Francis Bartlett	$15,000	Nathaniel Thayer	$2,000
Mrs. G. L. Pratt	2,000	Stephen Salisbury	500
H. H. Hunnewell	2,000		
			$21,500

Additional subscriptions towards building and furnishing an addition to the University Museum for the Botanic Department, paid to August 1, 1890, from

Augustus Hemenway	$100	Nathaniel C. Nash	$20,000
Mrs. Samuel D. Warren	3,000		
			$23,100

Additional subscriptions from graduates of the Dental School, to be applied towards the immediate wants of the School, paid to August 1, 1890, from

Charles H. Abbot	$25	P. B. Laskey	$5
C. A. Brackett	25	Frank Perrin	10
Edwin P. Bradbury	25	William H. Potter	5
Thomas Fillebrown	20	James Shepherd	5
H. W. Gillett	5	Charles Wilson	10
			$135

Subscriptions for the present use of the Herbarium paid to August 1, 1890, from

Frederick L. Ames	$500	Henry Lee	$500
B. P. Cheney	500	Augustus Lowell	250
H. H. Hunnewell	500	Nathaniel C. Nash	250
A friend	500	F. H. Peabody	100
Nathaniel T. Kidder	500	John Donnell Smith	250
			$3,850

Subscriptions for the purchase of the James Herbarium of Mosses from

E. S. Dixwell	$50	N. T. Kidder	$50
W. G. Farlow	50	F. H. Peabody	50
Mrs. Asa Gray	50	G. Putnam	50
A friend	100	C. S. Sargent	50
G. G. Kennedy	50		
			$500

Subscriptions for a collection of Semitic manuscripts, casts, &c., and to defray certain expenses in connection therewith, paid to August 1, 1890, from

Jacob H. Schiff	$10,100	Stephen Salisbury	$500
I. N. P. Stokes	25		
			$10,625

Through Professor Goodale, $1500, an anonymous gift for the present use of the Botanic department.

From George W. Hammond and Fiske Warren, $100 each, for the purchase of specimens for the Botanic Garden.

From Mrs. Asa Gray, $66.75, for the present use of the Herbarium.

From Miss Lucy Ellis, $1000, for the Physiological department of the Medical School.

From R. H. Fitz, $45, for the present use of the Medical School.

From the Harvard Law School Association, $500, additional, for the purpose of increasing the instruction in Constitutional Law during the year 1889–90.

Through Louis D. Brandeis, $1000, from an anonymous friend of the Law School, to defray the expenses of the course in the Peculiarities of Massachusetts Law and Practice for the year 1890–91.

From E. Rockwood Hoar, $50, for special purchases of books for the Divinity School Library.

From Henry C. Warren, $750, "to be applied, at the discretion of Professor C. R. Lanman, to the printing and publishing of Hindoo texts and of translations from the same, and to the purchase of Hindoo manuscripts," for the Sanskrit department.

From Nathaniel C. Nash, $500, "to be used under the direction of Professor John Williams White, to fit out his lecture rooms with such means of illustration as will best advance the interests of Greek studies in the University."

From David A. Wells, $300, "to be used for the department of Political Economy, in such a way as Assistant Professor F. W. Taussig may wish or suggest."

From John W. Carter, $50, for the purchase of books on Political Economy under the direction of Assistant Professor Taussig.

From Francis G. Peabody, $100, for the class-room library in the "Ethics of the Social Questions."

From Albert Bushnell Hart, $28.02, for the working library of books on American History and Politics.

From Carleton Hunneman, $3, for the German class-room library.

From an anonymous giver, $5, without restrictions.

The total amount of these gifts for immediate use is $162,225.49, as is also stated on page 18 of this report.

OTHER GIFTS ACKNOWLEDGED BY THE CORPORATION.

From Henry L. Higginson, a tract of land in Brighton containing about twenty-one acres of upland and ten acres of marsh, to be called "The Soldier's Field," and used for the present as a playground for the students.

From Mrs. Elizabeth C. Ware and Miss Mary L. Ware, the offer of a collection of glass models of plants, flowers, and analytical details of vegetable structure, now in process of construction by Leopold and Rudolf Blaschka, of Germany, and provision for their proper exhibition in the University Museum, "as a memorial of the late Dr. Charles Eliot Ware, of the Class of 1834."

From Mrs. George von L. Meyer, the wrought-iron work for the Johnston gate-way at the main entrance to the College Yard.

From the Thomson-Houston Electric Co., an electric motor with its attachments, for the Jefferson Physical Laboratory.

From George B. Dorr, two engravings of the Coliseum, by Piranesi, for the library of the Jefferson Physical Laboratory.

From Radtke, Lauckner & Co., of New York, six proofs of modern etchings to be added to the Gray Collection of Engravings.

By the bequest of William T. Carleton, his copy of a portrait of Galileo, for the Observatory.

From a committee of the Class of 1846, a portrait of George Frisbie Hoar.

From Richard S. Greenough, his bust in bronze of the historian George Bancroft.

From the Chamber of Commerce of the State of New York, a photograph of a portrait of Alexander Hamilton.

From John Corbett, member of Parliament for Mid-Worcestershire, through Miss Annie Wakeman, a miniature of George Washington.

From George G. Kennedy, a portrait of Clarke Gayton Pickman, for the College Library.

From Stephen H. Williams, a sketch of the life of Mr. E. Price Greenleaf, and a genealogical record of the Greenleaf family.

Through George E. Ellis, an ancient watch from the estate of Mrs. Ellen Marett Gifford, of New Haven.

From Fitz-Edward Hall, Sanskrit manuscripts, for the College Library.

From the sisters of the late George W. Batchelder, his library, consisting of about two hundred and twenty-five bound volumes, and a collection of unbound volumes and magazines, given in accordance with Captain Batchelder's wish.

From Henry J. Bigelow, the diagrams used by him to illustrate his lectures, for the Medical School.

From Mrs. Emily A. Burleigh, a Syriac manuscript, for the Semitic Museum.

From Epes S. Dixwell, thirteen volumes of the Journal of the Oriental Society, for the Semitic department.

From the Massachusetts Society for Promoting Agriculture, its manikin horse, for the Veterinary School.

Notice was received from the trustee under the will of William Brown Spooner that on the first day of May, 1890, and quarterly thereafter, he should pay for the use of the Divinity School the interest of $10,000; and, on the termination of the trust, the principal, in accordance with the terms of Mr. Spooner's bequest.

EDWARD W. HOOPER, *Treasurer.*

Boston, December 15, 1889.

ACCOUNTS.

General Statement of Receipts and Disbursements for the year ending

INCOME.

Interest on notes, mortgages, and advances,		$49,831.41
" " Massachusetts 5's,		1,532.78
" " Policies Mass. Hospital Life Insurance Co.,		345.00
" " Deposit with New England Trust Co.,		225.67
" " Metropolitan Telephone & Telegraph Co. 5's,		7,125.00
" " Railroad Bonds (after deductions for sinking premiums)		
Atchison, Topeka & St. Fé 7's,	$3,794.50	
Buffalo, Bradford & Pittsburg 7's,	4,200.00	
Burlington & Mo. River in Neb. 6's,	18,451.42	
Atchison & Nebraska 7's,	9,321.00	
Marion & McPherson 7's,	5,701.62	
Kan. City, St. Jos. & Council Bluffs 7's,	3,157.00	
Kansas City, Topeka & Western 7's,	2,215.17	
Fort Scott, So. E. & Memphis 7's,	7,278.00	
Kansas City & Cameron 10's,	8,805.00	
Lincoln & No. Western 7's,	1,750.00	
Eastern Railroad sterling 6's,	4,268.85	
Fremont, Elkhorn & Mo. Valley 6's,	600.00	
Chicago, Burlington & Quincy 4's,	120.00	
Eastern Railroad 6's,	18,888.00	
Consolidated R. R. of Vermont 5's,	2,175.00	
Rutland Railroad 6's,	732.00	
Rutland Railroad 5's,	1,860.00	
Cheshire Railroad 6's,	60.00	
Michigan Central 8's,	1,240.00	
Michigan Air Line 8's,	640.00	
Union Pacific 6's,	1,380.00	
Chicago, Burlington & Quincy 5's,	3,000.00	
Kansas City, Ft. Scott & Gulf 7's,	2,255.92	
Chicago & Michigan Lake Shore 8's,	480.00	
Ogdens. & Lake Champlain 6's,	2,790.00	
Ogdens. & Lake Champlain 8's,	480.00	
Boston & Lowell 7's,	210.00	
Chicago, Burlington & Northern 5's,	200.00	
St. Paul, Minneapolis & Manitoba 5's,	3,988.39	
Chicago, Burlington & Quincy 7's,	24,592.12	
Union Pacific R'y Omaha Bridge 5's,	4,886.00	139,519.99
Dividends on Stocks.		
Charles River National Bank,	240.00	
First (Cambridge) " "	225.00	
Fitchburg " "	72.00	
Massachusetts " "	60.00	
Merchants " "	792.00	
New England " "	129.50	
Old Boston " "	200.00	
Hingham " "	17.50	
Bank taxes refunded,	967.66	2,703.66
Amount carried forward,		$201,283.51

by the Treasurer of Harvard College,
July 31, 1890.

EXPENSES.

Paid to account of Expenses in the

University, as per Table I. (page 42).		
Fellowships,	$10,225.00	
Prizes,	350.00	
Salaries and other expenses,	46,563.65	
Advances repaid with interest,	8,880.84	66,019.49
College, as per Table II. (page 44).		
Salaries for instruction,	183,366.56	
Repairs and insurance on College Edifices, not valued on Treasurer's books,	10,829.41	
General expenses,	74,779.00	
Scholarships,	29,303.33	
Beneficiaries,	19,099.64	
Prizes,	889.12	
Botanic Garden,	7,990.87	
Herbarium,	3,048.60	
Hemenway Gymnasium,	10,146.05	
Jefferson Physical Laboratory,	3,670.15	
Quarterly Journal of Economics,	688.97	
Account of new Botanical Building,	15,101.76	
Books for special departments,	1,114.73	
Apparatus, &c., for Greek Dep't lecture room,	500.00	
Account of new Athletic Building,	38,395.12	
Account of new building for departments of Mineralogy and Botany,	38,052.62	
New gate-way,	11,525.55	
Printing, from Publication Funds,	665.25	449,166.73
Library, as per Table III. (page 51).		
Books,	15,137.83	
Salaries and other expenses,	29,917.81	45,055.64
Divinity School, as per Table IV. (page 53).		
Salaries and other expenses,	27,298.80	
Scholarships and Beneficiaries,	1,946.97	29,245.77
Law School, as per Table V. (page 55).		
Salaries and other expenses,		40,260.62
Medical School, as per Table VI. (page 56).		
Salaries, Laboratory expenses, &c.,	54,221.56	
Scholarships and Beneficiaries,	1,695.00	
Fees repaid to Instructors,	2,435.00	
Boylston Medical Prizes,	477.50	
Warren Anatomical Museum,	374.93	
Account of new addition,	9,050.00	
General expenses,	11,125.85	79,379.84
Amount carried forward		$709,128.09

General Statement of Receipts and Disbursements for the year ending

INCOME.

Amount brought forward, ...		$201,283.51
Dividends on Stocks.		
Amoskeag Manufacturing Co., . . .	$1,200.00	
Amory " " . . .	108.00	
Massachusetts " " . . .	420.00	
Merrimack " " . . .	1,190.00	
Nashua " " . . .	1,185.00	
Stark Mills, ...	480.00	
Wamsutta Mills, ...	288.00	
Pacific Mills, ...	2,000.00	6,871.00
Chicago, Burlington & Quincy R. R., .	1,940.00	
Pittsfield & North Adams R. R., . . .	157.50	
Eastern R. R., preferred, ...	11,316.00	
Cheshire R. R., preferred, ...	401.50	
Rutland R. R., preferred, ...	1,600.00	
Boston & Maine R. R., ...	1,976.00	
Old Colony R. R., ...	2,485.00	
New York Cent. & Hud. River R. R.,	90.00	
Michigan Central R. R., ...	1,460.00	
Boston & Lowell R. R., ...	2,520.00	
Northern R. R. (N. H.), ...	1,740.00	
West End Street Railway Co., ...	208.00	
Union Stock Yard & Transit Co., . . .	2,250.00	
Fitchburg R. R., preferred, ...	280.00	
Eastern R. R., common, ...	878.75	
N. Y., New Haven & Hartford R. R., .	3,500.00	32,802.75
Real Estate, from rents, &c. (gross receipts).		
Cambridge (Houses and Lands), ...	37,831.27	
Boston (general investments), ...	85,467.71	
Bussey real estate, ...	38,723.23	
Sundry estates, ...	11,051.15	173,073.36
Term Bills.		
College, as per Table II., ...	244,485.57	
Divinity School, as per Table IV., ...	4,678.98	
Law School, as per Table V., ...	36,465.00	
Medical School, as per Table VI., ...	53,148.62	
Dental School, as per Table VII., ...	5,220.00	
Lawrence Scientific School, as per Table VIII.,	9,995.20	
Bussey Institution, as per Table X., ...	230.00	
School of Veterinary Medicine, as per Table X.,	2,395.00	361,618.37
Sundries.		
William Pennoyer Annuity, ...	245.52	
Professor Gray's copyrights, ...	2,382.05	
Trustee of Thayer Scholarships, ...	3,266.67	
Amounts carried forward, ...	$5,894.24	$775,648.99

by the Treasurer of Harvard College,
July 31, 1890.

EXPENSES.

Amount brought forward, ...		$709,128.09
Dental School, as per Table VII. (page 58).		
Salaries and other expenses, ...		7,973.77
Lawrence Scientific School, as per Table VIII. (page 59).		
Salaries and other expenses, ...	$14,963.18	
Museum of Comparative Zoölogy, ...	28,370.36	43,333.54
Observatory, as per Table IX. (page 60), ...		55,508.72
Bussey Institution, as per Table X. (page 61),	10,052.47	
School of Veter'y Medicine, as per Table X. (page 61),	19,310.10	
Arnold Arboretum, as per Table X. (page 61),	7,930.05	37,292.62
Real Estate, expenses.		
Insurance.		
Cambridge, ...	$337.50	
Boston (general investments), . .	536.23	
Bussey real estate, ...	96.90	970.63
Taxes.		
Cambridge, ...	2,861.89	
Boston (general investments), . .	14,209.35	
Bussey real estate, ...	7,469.80	
Sundry estates, ...	557.92	25,098.96
Interest.		
Bussey real estate (on advances), ...		1,978.90
Repairs, improvements, care, cleaning and sundries.		
Cambridge, ...	13,051.31	
Boston (general investments), . .	15,030.26	
Bussey real estate, ...	1,606.55	
Sundry estates, ...	69.20	29,757.32
Heating and hoisting for **Bussey** stores, including repairs and renewal of apparatus, ...	6,079.96	
Less for sales of heat and power, .	2,555.00	3,524.96 61,330.77
Amount carried forward, ...		$914,567.51

General Statement of Receipts and Disbursements for the year ending

INCOME.

Amounts brought forward, ...		$5,894.24	$775,648.99
Sundries.			
Trustees of **Edward Hopkins,**		213.80	
Trustee of **William B. Spooner,**		173.62	
Use of Library by resident graduates and others, .		225.00	
Printing by College Press for other departments,		8,197.08	
Sale of grass, wood, and old material, ...		3,831.63	
" " old examination papers, ...		50.19	
" " time signals from Observatory, ...		2,852.50	
" " tickets to Commencement Dinner, ...		636.00	
" " books, pamphlets, catalogues, &c., ...		1,338.57	
Board of horses, cattle, &c. at Bussey Institution,		1,249.05	
Repayment of sundry advances, ...		8,162.72	
Laboratory instruction to Dental and Veterinary students, ...		290.00	
Proportion of expenses of Gymnasium repaid by other departments, ...		1,692.65	
Use of lockers at Gymnasium, ...		2,376.00	
Fees for admission examinations, &c., ...		962.87	
Fees in Infirmary and Laboratory, Dental School,		4,469.24	
Fees from Veterinary Hospital and Forge, ...		15,393.45	
Subscribers to Veterinary Hospital, ...		1,910.00	
Balance of fees for Summer Courses, ...		6,580.92	
Laboratory fees { Chemical	$5,339.82		
Physical	1,705.00		
Natural History	1,887.50	8,932.32	75,431.85
Sundry gifts for immediate use, see page 11, ...			162,225.49
Total amount of income, ...			$1,013,306.33

RECEIPTS EXCLUSIVE OF INCOME.

GIFTS.

Edward Russell Scholarship (additional), ...	$200.00	
Lowell Fund for a Botanic Garden (additional), . .	1,000.00	
Law School Book Fund " . .	5,000.00	
Retiring Allowance Fund " . .	200,000.00	
John L. Russell Fund, ...	25,370.03	
" " " " (Divinity School), ...	1,000.00	
Subscriptions for Medical School (additional), . . .	10,500.00	
J. Ingersoll Bowditch Fund (Medical School), . .	6,000.00	
" " " (Observatory), . . .	2,500.00	
Fund for Religious Services (additional), ...	200.00	
Daniel Treadwell Fund "	1,400.00	
Fund of the **Class of 1853** "	1,000.00	
George B. Sohier Prize Fund, ...	6,000.00	
Amounts carried forward, . .	$260,170.03	$1,013,306.33

by the Treasurer of Harvard College,
July 31, 1890.

EXPENSES.

Amount brought forward,		$914,567.51
Annuities.		
Bussey,	6,300.00	
Gore,	600.00	
Lucy Osgood,	420.00	
Class of 1802,	120.00	
Bemis,	2,565.60	
Gurney,	1,000.00	11,005.60
Class Funds.		
Paid the Secretary of the **Class of 1834,**	$40.00	
" " " " **1853,**	105.00	145.00
Walter Hastings Building Fund.		
Paid on account of the erection of **Walter Hastings** Hall (additional),		99,906.15
Sundry payments from income.		
To the Treasurer of the Museum of Fine Arts, from **Gray** Fund for Engravings,	817.45	
The income of the **Daniel Williams** Fund for the benefit of the Herring Pond and Mashpee Indians,	606.51	
The income of the **Sarah Winslow** Fund, to the Minister and Teacher at Tyngsboro', Mass.,	239.46	
For account of the Semitic collection,	1,366.97	3,030.39
Total amount of expenses,		$1,028,654.65

INVESTMENTS AND SUNDRY PAYMENTS.

Burl. & Mo. River (Neb.) R. R. 6's,	$7,000	cost,	$7,560.00
Chic. Burl. & Quincy R. R. cons. 7's,	374,000	"	486,200.00
" " " " " conv. 5's,	100,000	"	110,381.30
Union Pacific R'y Omaha Bridge 5's,	75,000	"	77,062.50
Massachusetts 5's, 1894 (**Paine** Fund),	1,000	"	1,090.00
Paid for accrued interest and expenses on the above bonds,			8,542.76
Amount carried forward,			$1,719,491.21

General Statement of Receipts and Disbursements for the year ending

RECEIPTS EXCLUSIVE OF INCOME.

Amounts brought forward, . .		$260,170.03	$1,013,306.33
GIFTS.			
John O. Sargent Prize Fund, ...		112.00	
Richard Augustine Gambrill Scholarship, . . .		10,000.00	
Charles Haven Goodwin " . . .		6,000.00	
Scholarship and Beneficiary money returned, ...		1,000.00	277,282.03
SALES.			
$18,000	Burl. & Mo. R. (Neb.) R. R. 6's (paid off)	18,000.00	
2,000	Ft. Scott, So. E. & Memp. R. R. 7's "	2,100.00	
12,000	Chic. & Mich. Lake Shore R. R. 8's "	12,000.00	
31,000	Michigan Central R. R. 8's "	31,000.00	
6,000	Ogdens. & L. Champlain R. R. 8's "	6,000.00	
185,000	Atch., Top. & St. Fé R. R. 1st M. 7's, . .	207,200.00	
108,000	Kan. City, Top. & West. R. R. 1st M. 7's,	122,580.00	
150,000	Marion & McPherson R. R. 1st M. 7's, . .	156,000.00	
100,000	St. Paul, Minn. & Manitoba R. R. 5's, . .	99,875.00	
33,000	Kan. City, Ft. Scott & Gulf R. R. 7's, . .	39,063.75	
1,301 shares	Chic. Burl'n & Quincy R. R., . . .	137,592.87	
24 "	Chic. Burl'n & Northern R. R., . .	960.00	
1,886 "	Eastern R. R. preferred (exch.), .	245,180.00	
63 "	Pittsfield & North Adams R. R., . .	7,426.12	
95 "	Eastern R. R. common (exch.), .	11,400.00	
Rights	Union Pacific R. R., ...	158.60	
"	Chicago, Burl'n & Quincy R. R., .	170.40	
Scrip	Boston & Maine R. R., ...	122.67	
36 shares	Amory Manufacturing Co., ...	4,187.00	
7 "	Massachusetts Mills, ...	7,292.50	
5 "	Nashua Manufacturing Co., . . .	2,943.75	
12 "	Stark Mills, ...	14,195.00	
96 "	Wamsutta Mills, ...	9,392.25	
60 "	Charles River National Bank, . .	8,896.50	
50 "	First Cambridge " " . .	8,812.50	
24 "	Fitchburg " " . .	3,445.50	
12 "	Massachusetts " " . .	3,292.50	
264 "	Merchants " " . .	38,346.00	
37 "	New England " " . .	6,095.75	
100 "	Old Boston " " . .	11,630.25	
Estate on Townsend Street, Roxbury,		$11,500.00	
Less amount deducted for income,		645.37	10,854.63
Amounts carried forward, . .		$1,221,213.54	$1,290,588.36

by the Treasurer of Harvard College,
July 31, 1890.

INVESTMENTS AND SUNDRY PAYMENTS.

	Amount brought forward, ...		$1,719,491.21
1,886 shares	Boston & Maine R. R. preferred (exch.),	245.180.00	
79 "	" " " " common (exch.),	11,400.00	
700 "	N. Y., N. Haven & Hartford R. R., .	174.412.00	430,992.00
5% of subscription for $25,000 Chicago Gr. Junction Railways & Union Stock Yards Coll. Trust 5s, ...			1,250.00
Policy of Mass. Hospital Life Insurance Co., ...			1,000.00
Paid on account of the extension of the Natural History Laboratories, and for purchase of fossils, ...		12,371.91	
Less amount repaid by Museum of Comparative Zoölogy, ...		3,368.83	9,003.08
Invested in notes of Manufacturing Companies, &c.,		1,375,500.00	
Less mortgages and notes paid off, ...		1,225,000.00	150,500.00
Purchase of Cole Estate, Washington St., Boston, ...			250,000.00
" " Rindge marsh, Brighton, ...			2,600.00
Advanced for purchase of Willard Estate, ...			29.984.00
Improvements on Amory Estate, Boston, ...			6,941.31
" " Foxcroft Estate, Cambridge, ...			4,283.82
Property received as the residuary legacy of John L. Russell.			
$6,400 United States registered 4's, ...		8,124.00	
5,000 State of Maine 6's, ...		5,300.00	
10 shares Hingham National Bank, ...		725.00	
10 " First Salem " "		1,307.50	
5 " Mercantile " " Salem, . .		623.75	
1 " Great Pasture Company, " . .		76.00	
50 " Tredegar Company, ...		3,000.00	
Estate 22 Lafayette St., Salem, ...		4,968.87	
Deposit in Hingham Savings Bank, ...		980.22	
" " Salem " "		264.69	25,370.03
	Amount carried forward, ...		$2,631,365.45

General Statement of Receipts and Disbursements for the year ending

RECEIPTS EXCLUSIVE OF INCOME.

Amounts brought forward, . .	$1,221,213.54	$1,290,588.86
SALES.		
$6,400 United States registered 4's, ...	8,124.00	
5,000 State of Maine 6's, ...	5,300.00	
10 shares Hingham National Bank, ...	725.00	
10 " First Salem " "	1,307.50	
5 " Mercantile " " Salem, . .	623.75	
1 " Great Pasture Company, " . .	76.00	
50 " Tredegar Company, ...	3,000.00	
Estate 22 Lafayette St., Salem, ...	4,968.87	
Deposit in Hingham Savings Bank, withdrawn, . .	980.22	
" " Salem " " " . .	264.69	1,246,583.57
SUNDRIES.		
From Dining Hall Association, to reduce debt, . .	1,500.00	
Advances to premiums on $2,087,050 R.R.B., repaid,	28,213.00	
" " accrued interest and expenses on Bonds repaid, ...	8,740.68	
Boston & Providence R. R. Co., damages for change in the location of South Street, Bussey Farm, .	2,752.37	
Northern R. R. Dividend of surplus, ...	7,250.00	48,456.05

Balance, August 1, 1889.		
Cash in Suffolk National Bank, ...	$75,302.13	
Cash in New England Trust Co., ...	24,287.77	
Check for deposit in New England Trust Co.,	6,563.77	
Cash in hands of Charles F. Mason, Bursar, .	12,209.39	
Term Bills due October, 1889, ...	99,646.40	
" " overdue, ...	2,136.48	220,145.94
Total, ...		$2,805,773.92

by the Treasurer of Harvard College,
July 31, 1890.

Amount brought forward, ...	$2,631,365.45

Balance, July 31, 1890.

Cash in Suffolk National Bank, ...	$42,672.69	
Cash in New England Trust Co., ...	16,513.21	
Cash in hands of Charles F. Mason, Bursar, . .	7,196.03	
Term Bills due October, 1890, ...	105,764.16	
" " overdue, ...	2,262.38	174,408.47
Total, ...		$2,805,773.92

The following Account exhibits the State of the Property, as entered upon the Treasurer's Books, July 31, 1890.

Separate Investments, as stated in detail on pages 1 and 2 of this report, consisting of		
Mortgages and Notes,	$186,786.60	
Railroad Bonds,	258,844.00	
Sundry Bonds,	85,951.67	
Railroad Stocks,	306,007.33	
Real Estate,	457,587.10	
Sundries,	52,367.78	
Amounting to		$1,347,544.48
And "General Investments" as follows: —		
Mortgages and Notes.		
Mortgages,	29,713.40	
Boott Cotton Mills' Note,	50,000.00	
Cocheco Manufacturing Co.'s Note,	40,000.00	
Lawrence Manufacturing Co.'s Note,	70,000.00	
Lowell Manufacturing Co.'s Notes,	70,000.00	
Lowell Bleachery's Note,	35,000.00	
Merrimack Manufacturing Co.'s Notes,	70,000.00	
Pacific Mills' Notes,	200,000.00	
		564,713.40
Railroad Bonds.		
$314,000 Burl. & Mo. R. in Nebr. non ex. 6's,	314,000.00	
50,000 Kan. City, St. Jos. & C. B., 1st M. 7's,	50,000.00	
25,000 Lincoln & No. West., 1st M. 7's,	25,000.00	
150,000 Kan. City & Camer., 1st M. 10's,	150,000.00	
150,000 Atchison & Nebraska, 1st M. 7's,	150,000.00	
110,000 Ft. Scott, So. E. & Mem., 1st M. 7's,	110,000.00	
393,000 Eastern, 1st Mortg. 6's,	393,000.00	
£14,600 Eastern, " " " Sterling,	71,050.90	
674,000 Chicago, Burl. & Quincy Consol. 7's,	674,000.00	
60,000 Chicago, Burl. & Quincy 5's,	60,000.00	
100,000 Chicago, Burl. & Quincy Conv. 5's,	100,000.00	
175,000 U. P. Omaha Bridge 1st M. 5's,	175,000.00	
Railroad Bond Premiums,	306,613.02	
		2,578,663.92
Sundry Bonds.		
$100,000 Metropolitan Tel. & Tel. Co. 1st M. 5's,	99,500.00	
5% of subscription for $25,000 Chicago Gr. Junct. Railways and Union Stock Yards Coll. Trust 5's,	1,250.00	
		100,750.00
Manufacturing Stocks.		
Amoskeag, 12 shares,	3,654.00	
Merrimack, 17 "	17,000.00	
Nashua, 31 "	22,616.25	
Pacific Mills, 20 "	17,468.29	60,738.54
Amount carried forward,		$4,652,410.34

Amount brought forward, ...		$4,652.410.34
Sundry Stocks.		
Boston & Maine R. R. preferred, 1,886 shares,	245,180.00	
N. Y., New Haven & Hartford R. R., 700 "	174,412.00	
Union Stock Yard & Transit Co., 250 "	28,062.50	
		447,654.50
Real Estate.		
Houses and Lands in Cambridge yielding income,	353,585.06	
Unimproved Lands in Cambridge, ...	41,568.38	
Amory Estate, Franklin Street, Boston, . . .	172,557.12	
Webb Estate, Washington Street, Boston, . .	164,604.79	
Andrews Estate, Washington Street, Boston, .	165,562.00	
Gray Estate, Washington Street, Boston, . . .	487,119.12	
Cole Estate, Washington Street, Boston, . . .	250,000.00	
Estate on Hawley Street, Boston, ...	38,650.78	
Estate on Hawkins Street, Boston, ...	29,476.09	
Reversion of Buildings on Brattle Street, Boston,	1,000.00	
Improvements on Gray and Andrews Estates, .	9,535.60	
		1,713,658.94
Sundries.		
Due from Dining Hall Association, ...	24,232.16	
" " Lawn Tennis Association, ...	250.00	
" " Bussey Trust, ...	37,513.76	
" " School of Veterinary Medicine, . .	16,848.84	
" " Observatory, ...	200.47	
Advances to Observatory real estate, ...	1,197.68	
" " University Lands, ...	69,248.18	
Baring Brothers & Co., ...	744.83	
Term bills due October, 1890, ...	105,764.16	
" " overdue, ...	2,262.38	
		258,262.46
Cash in Suffolk National Bank, ...	42,672.69	
" " hands of Charles F. Mason, Bursar, . . .	7,196.03	49,868.72
Total, ...		$7,121,854.96

The foregoing Property represents the following Funds and Balances, and is answerable for the same.

UNIVERSITY FUNDS.

Principal, Aug. 1, 1889.		Principal, July 31, 1890.	
$97,357.41	**Stock Account** (so called), . .	$107,737.54	
125,138.74	**Ins. and Guaranty F'd** (so called), .	125,138.74	
15,750.00	**Israel Munson Fund**, ...	15,750.00	
16,871.63	**Leonard Jarvis** "	16,871.63	
9,000.00	**Sever Fund** (unrestricted), . . .	9,000.00	
25,000.00	**John C. Gray Fund**, ...	25,000.00	
115,966.56	**George B. Dorr Fund**, ...	115,966.56	
5,000.00	**Seth Turner Fund**, ...	5,000.00	
113,817.44	**Francis E. Parker Fund**, . . .	113,817.44	
30,000.00	**William Perkins Fund**,. . . .	30,000.00	
	John L. Russell Fund, ...	25,370.03	
5,000.00	**Stanton Blake Fund**, ...	5,000.00	
62,875.31	President's Fund, ...	62,981.34	
154.98	**Thomas Cotton Fund**, ...	155.13	
5,250.00	**Samuel D. Bradford Fund**, . . .	5,250.00	
35,027.04	Retiring Allowance Fund, ...	242,211.97	
22,000.00	**John Cowdin Fund**, ...	22,000.00	
56,391.27	**John Parker Fellowships**, . . .	56,376.99	
10,727.05	**Robert Treat Paine Fellowship**, .	10,756.96	
10,602.83	**Harris Fellowship**, ...	10,626.62	
11,312.90	**John Thornton Kirkland Fellows'p**,	10,846.76	
10,839.08	**James Walker Fellowship**, . . .	10,999.53	
31,644.07	**Rogers Fellowships**, ...	32,082.28	
10,127.75	**Henry Lee Memorial Fellowship**, .	10,628.07	
10,127.75	**Ozias Goodwin Memorial Fellows'p**,	10,178.07	
10,127.75	**H. B. Rogers Memorial Fellowship**,	10,178.07	
81,943.73	**Henry T. Morgan Fund**, . . .	81,943.73	
11,139.44	**John Tyndall Scholarship**, . . .	11,189.70	
2,206.29	**Sumner Prize Fund**, ...	2,215.27	
	George B. Sohier Prize Fund,. .	6,148.20	
100.00	**John O. Sargent Prize Fund**, . .	316.40	
150.00	**Robert N. Toppan Prizes** . . .	150.00	
150.00	Dante Prizes, ...	150.00	
	Semitic Prizes, ...	200.00	
6,541.69	Lectures on Political Economy Fund,	6,464.86	
20,670.44	**Walter Hastings Fund**, ...	21,303.78	$1,220,005.67

COLLEGE FUNDS.

27,748.64	**Alford Professorship**, ...	27,748.64	
28,337.40	**Boylston** "	28,337.40	
21,619.50	**Eliot** "	21,619.50	
10,000.00	**Eliot** " **(Jon. Phillips's gift)**	10,000.00	
3,500.01	**Erving** "	3,500.01	
$1,060,216.70	. . . Amounts carried forward, . .	$91,205.55	$1,220,005.67

Principal, Aug. 1, 1889.			Principal, July 31, 1890.
$1,060,216.70	. . . Amounts brought forward, . .	$91,205.55	$1,220,005.67
35,990.99	Fisher Professorship, ...	35,990.99	
20,217.08	Hersey "	20,217.08	
21,744.18	Hersey " (Thomas Lee's gift),	21,744.18	
3,747.33	Hollis " (Mathematics),	3,747.33	
34,517.60	Hollis " (Divinity), . . .	34,517.60	
43,062.93	McLean "	43,062.93	
21,000.00	Perkins "	21,000.00	
25,020.19	Plummer "	25,020.19	
52,500.00	Pope "	52,500.00	
56,441.25	Rumford "	56,441.25	
23,139.83	Smith "	23,139.83	
176,431.83	Gurney Fund, ...	180,772.57	
16,240.38	Fund for Permanent Tutors, . . .	16,240.38	
15,796.97	Lee Fund for Reading, ...	15,796.97	
145,000.00	Class Subscription Fund, . . .	145,000.00	
2,801.90	Paul Dudley Fund for Lectures, .	2,840.32	
31,500.00	Jonathan Phillips F'd (unrestricted),	31,500.00	
1,050.00	John A. Blanchard " "	1,050.00	
4,879.48	John W. P. Abbot " "	5,120.50	
13,220.50	Daniel H. Peirce " "	13,286.60	
6,230.00	Daniel Austin " "	6,230.00	
1,081.30	Scholarship & Benef. money returned,	2,088.41	
344.48	Henry Flynt's Bequest, ...	343.93	
3,246.27	Abbot Scholarship, ...	3,406.62	
1,030.94	Alford "	1,081.87	
5,293.67	Bartlett "	5,305.19	
5,626.67	Bassett "	5,634.64	
11,822.21	Bigelow "	11,906.22	
109,514.61	Bowditch "	109,424.65	
854.34	Bright " (balance), . . .	339.34	
3,339.00	Browne "	3,503.95	
6,141.09	Ruluff S. Choate Scholarship, . .	6,144.46	
7,340.11	Class of 1802 Scholarship, . . .	7,382.71	
2,949.56	" 1814 "	2,945.29	
5,427.63	" 1815 " (Kirkland),	5,545.77	
3,876.44	" 1817 "	3,917.91	
3,030.95	" 1828 "	3,180.68	
3,009.80	" 1835 "	3,157.94	
4,092.92	" 1841 "	4,095.11	
4,281.70	" 1852 " (Dana), .	4,493.23	
10,000.00	" 1856 "	10,000.00	
2,928.66	" 1867 "	3,073.35	
9,517.07	Crowninshield "	9,987.21	
600.00	Warren H. Cudworth Scholar'ps,	600.00	
5,382.09	George & Martha Derby Scholar'p,	5,397.96	
5,349.07	W. S. Eliot Scholarship, ...	5,363.31	
5,846.17	Farrar "	5,834.96	
	Richard Augustine Gambrill Sch.	10,061.75	
$2,082,125.39	. . . Amounts carried forward, .	$1,080,640.73	$1,220,005.67

Principal, Aug. 1, 1889.			Principal, July 31, 1890.	
$2,032,125.39	. . . Amounts brought forward,	$1,080,640.73	$1,220,005.67	
	Charles Haven Goodwin Sch. . .	6,000.00		
3,055.10	Greene Scholarship, ...	3,206.02		
5,769.71	Levina Hoar Scholarship, ...	5,804.75		
9,132.88	Hodges "	9,584.05		
5,280.15	Hollis "	5,340.98		
2,761.46	Matthews " (balance), .	3,547.06		
5,110 26	Merrick "	5,162.69		
7,496.03	Morey "	7,566.33		
6,676.92	Pennoyer "	6,682.70		
3,092.51	Perkins "	3,245.30		
824.90	Rodger "	865.66		
3,279.69	Henry B. Rogers "	3,291.72		
2,575.83	Edward Russell "	2,912.96		
5,515.89	Mary & Leverett Saltonstall Sch.,	5,788.38		
911.10	Dorothy Saltonstall Scholarship, .	956.10		
3,184.46	Sever Scholarship, ...	3,191.75		
9,682.40	Sewall "	9,760.69		
46,219.61	Shattuck "	46,452.88		
5,628.13	Slade "	5,739.49		
3,187.42	Story "	3,344.85		
2,408.64	Stoughton "	2,463.67		
4,037.55	Gorham Thomas "	4,037.03		
6,921.50	Toppan "	6,963.45		
24,456.76	Townsend "	24,464.94		
3,991.29	Walcott "	3,988.45		
10,200.33	Whiting "	10,204.21		
9,870.95	Exhibitions, ...	9,833.88		
1,797.37	Palfrey Exhibition, ...	1,796.14		
1,200.00	Samuel Ward Fund, ...	1,200.00		
1,517.95	John Glover "	1,592.94		
10,997.56	Quincy Tufts "	10,984.26		
5,372.57	Day "	5,368.00		
10,382.96	Munroe "	10,375.88		
9,558.24	Price Greenleaf Aid, ...	8,102.23		
4,111.30	Boylston Prizes for Elocution, . .	4,059.38		
12,891.62	Bowdoin Prizes for Dissertations, .	13,178.48		
1,209.75	Hopkins Gift for "Deturs," . . .	1,199.20		
650.04	Chauncey Wright Fund, ...	682.15		
50,000.00	Increase S. Wheeler Fund, . . .	50,000.00		
833.57	Fund for Religious Services, . . .	1,033.57		
15,348.61	John E. Thayer Fund, ...	15,417.88		
6,332.88	Classical Publ. F'd of Class of 1856,	6,345.73		
42,780.76	Botanic Department Fund, ...	42,099.18		
55,882.31	Lowell Fund for a Botanic Garden, .	56,882.31		
18,932.62	Herbarium Fund, ...	23,695.86		
26,759.79	Carey Building Fund, ...	141.29		
3,357.91	Botanical Building Fund, ...	2,882.44		
75,000.00	Physical Laboratory Endowment, . .	75,000.00	1,634,458.	
$2,578,314.67	. . . Amounts carried forward, .	$1,613,077.64	$1,220,005.	

Principal, Aug. 1, 1889.			Principal, July 31, 1890.
$2,578,314.67	. . . Amounts brought forward,	$1,613,077.64	$1,220,005.67
343.33	Jefferson Physical Laboratory, . .	395.12	
10,162.50	S. Johnston Bequest for gate-way, .		
13,015.00	Building Fund for Addition to Museum,	5,309.34	
1,634.25	Sundry Gifts (unexpended balances),	1,385.29	1,620,167.39

LIBRARY FUNDS.

100,000.00	Eben Wright Fund, ...	100,000.00	
26,085.63	Constantius Fund, ...	26,004.25	
500.00	Jarvis Fund, ...	500.00	
9,172.25	Daniel Treadwell Fund, ...	10,572.25	
10,512.86	Subscription for Library, ...	10,567.50	
2,106.93	Bowditch Fund, ...	2,118.84	
52.46	Bright "	112.57	
5,350.88	Denny "	5,306.39	
5,560.00	Farrar "	5,448.20	
3,091.73	Haven "	3,135.50	
9,980.48	Hayes "	10,093.91	
5,290.10	Hayward "	5,266.56	
2,390.02	Hollis "	2,397.98	
2,092.63	Homer "	2,105.45	
5,367.85	Lane "	5,310.50	
21,945.92	Lowell "	22,454.50	
60,034.76	Minot "	60,041.01	
7,120.59	Mary Osgood "	6,998.98	
7,129.85	Lucy Osgood "	7,168.19	
5,351.45	Salisbury "	5,349.07	
20,039.24	Sever "	20,092.68	
4,094.31	Shapleigh "	4,117.88	
37,386.73	Sumner "	37,509.36	
5,006.90	Tucker "	5,047.32	
5,281.36	Ward "	5,298.65	
417.37	Wales "	196.16	
16,009.16	Walker "	15,937.04	
760.00	Waterston "	581.54	
257.18	Sundry gifts, etc. (unexpended balances),	204.24	379,926.52

DIVINITY SCHOOL FUNDS.

29,032.03	Divinity School (balance), ...	27,403.37	
37,583.74	Bussey Professorship, ...	37,583.74	
16,015.81	Parkman "	16,015.81	
6,008.43	Hancock "	6,008.43	
47,845.73	Winn Prof. of Ecclesiastical History,	48,345.73	
20,280.38	Dexter Lectureship, ...	20,280.38	
9,184.69	Henry Lienow Fund, ...	9,184.69	
5,250.00	Mary P. Townsend "	5,250.00	
2,100.00	Winthrop Ward "	2,100.00	
1,050.00	Samuel Hoar "	1,050.00	
$3,156,209.20	. . . Amounts carried forward, .	$173,222.15	$3,220,099.58

Principal, Aug. 1, 1889.		Principal, July 31, 1890.	
$3,156,209.20	. . . Amounts brought forward, .	$173,222.15	$3,220,099.58
1,050.00	**Abraham W. Fuller** Fund, . . .	1,050.00	
1,050.00	**Caroline Merriam** " . . .	1,050.00	
7,875.00	**Joseph Baker** " . . .	7,875.00	
40,000.00	**Th. Tileston** of New York Endowm't,	40,000.00	
10,000.00	**Henry P. Kidder** Fund, ...	10,000.00	
17,000.00	**Oliver Ames** Fund, ...	17,000.00	
1,000.00	**Abby Crocker Richmond** Fund, .	1,000.00	
71,427.02	New Endowment, ...	71,427.02	
	John L. Russell Fund, . . .	1,000.00	
1,235.04	**John W. Quinby** Fund, . . .	1,296.05	
911.34	**Lewis Gould** " . . .	911.34	
2,177.95	**Joshua Clapp** " . . .	2,177.95	
525.00	**Hannah C. Andrews** " . . .	525.00	
1,000.00	**Adams Ayer** " . . .	1,000.00	
890.00	**Daniel Austin** " . .	890.00	
13,916.70	**Jackson** Foundation, ...	14,070.88	
5,143.57	**Thomas Cary** Scholarships, . .	5,139.34	
2,419.67	**George Chapman** " . .	2,439.22	
3,931.84	**Joshua Clapp** " . .	4,001.08	
4,482.98	**J. Henry Kendall** " . .	4,564.44	
3,238.50	**Nancy Kendall** " . .	3,211.85	
12,839.56	**Abner W. Buttrick** Fund, . . .	12,923.86	
1,050.00	**William Pomroy** " . . .	1,050.00	
2,393.50	Beneficiary money returned, . . .	2,511.76	380,336.94

LAW SCHOOL FUNDS.

20,338.69	Law School (balance), ...	32,532.62	
15,750.00	**Dane** Professorship, ...	15,750.00	
23,979.82	**Bussey** "	23,979.82	
8,340.81	**Royall** "	8,340.81	
94,994.97	New "	94,994.97	
37,021.25	Law School Book Fund, ...	42,021.25	217,619.47

LAWRENCE SCIENTIFIC SCHOOL, AND MUSEUM OF COMPARATIVE ZOÖLOGY FUNDS.

1,211.81	Lawrence Scientific School (balance),	5,265.12	
38,807.17	Professorship of Engineering, . .	38,807.17	
61,536.43	**Abbott Lawrence** Fund, ...	61,536.43	
50,375.00	**James Lawrence** "	50,375.00	
30,686.85	**John B. Barringer** "	30,686.85	
100,110.00	**Sturgis Hooper** "	100,440.00	
50,000.00	**Gray** Fund for Zoölogical Museum,	50,000.00	
297,933.10	**Agassiz Memorial** Fund, . . .	297,933.10	
7,594.01	Teachers' and Pupils' " . . .	7,594.01	
117,469.34	Permanent Fund, ...	117,469.34	
7,740.66	**Humboldt** "	7,740.66	767,847.68
$4,325,656.78	. . . Amounts carried forward, . .		$4,585,903.67

Principal, Aug. 1, 1889.		Principal, July 31, 1890.	
$4,325,656.78	. . . Amounts brought forward, .	$4,585,903.67	
	MEDICAL SCHOOL FUNDS.		
57,886.65	Medical School (balance), ...	58,212.77	
19,192.65	**Jackson** Medical Fund, ...	19,192.65	
17,129.20	**Geo. C. Shattuck** "	17,129.20	
12,880.16	**Warren** Fund for Anatom'l Museum,	13,141.50	
3,619.53	**Boylston** Fund for Medical Prizes,	3,320.86	
3,256.99	**Boylston** " " " Books,	3,417.89	
2,078.25	Medical Library Fund, ...	2,027.12	
2,000.00	**Quincy Tufts** Medical Fund, . .	2,000.00	
25,512.68	**Edward M. Barringer** " . .	25,512.68	
15,765.11	**Mary W. Swett** Fund, ...	15,765.11	
20,000.00	**Samuel W. Swett** "	20,000.00	
1,836.08	**Samuel E. Fitz** "	1,836.08	
	Henry F. Sears Building Fund, .	26,892.04	
	J. Ingersoll Bowditch Fund, . .	6,172.90	
9,750.00	New Subscription Fund, ...	20,250.00	
217.86	**John Foster** Income for Medical Students, ...	190.33	
5,138.38	**D. W. Cheever** Scholarship, . .	5,192.20	240,253.33.
	OBSERVATORY FUNDS.		
346.29	Observatory (balance), ...		
110,293.88	**Edward B. Phillips** Fund, . . .	110,293.88	
21,000.00	**James Hayward** " . . .	21,000.00	
26,879.24	**David Sears** " . . .	27,543.15	
12,145.85	**Josiah Quincy** " . . .	11,721.16	
2,000.00	**Charlotte Harris** " . . .	2,000.00	
5,000.00	**Thomas G. Appleton** " . . .	5,000.00	
13,380.00	**Augustus Story** Fund, ...	13,380.00	
50,000.00	Observatory Endowment, ...	50,000.00	
120,110.35	**Robert Treat Paine** Fund, . .	120,110.35	
50,000.00	**Paine** Professorship, ...	50,000.00	
230,208.14	**Uriah A. Boyden** Fund, ...	228,047.31	
50,062.50	**Bruce** Fund, ...	43,611.14	
	J. Ingersoll Bowditch Fund, . .	2,500.00	
772.93	**Draper Memorial** (balance), . .	799.57	686,006.56
	OTHER FUNDS FOR SPECIAL PURPOSES.		
413,092.80	**Bussey** Trust (income thereof, ½ to Bussey Institution, ¼ to Law School, and ¼ to Divinity School), . . .	413,092.80	
6,433.53	Bussey Institution (balance), . . .	8,906.67	
609.02	**Bussey** Building Fund, ...	609.02	
154,468.50	**James Arnold** "	154,850.04	
4,581.08	Arnold Arboretum "	6,050.61	
$5,793,304.43	. . . Amounts carried forward, .	$583,509.14	$5,512,163.56

Principal, Aug. 1, 1889.		Principal, July 31, 1890.	
$5,793,804.43	. . . Amounts brought forward,	$583,509.14	$5,512,163.56
50,000.00	**Bright** Legacy, ...	50,000.00	
35,012.34	**Robert Troup Paine** Fund, . . .	36,545.12	
42,000.00	**James Savage** Fund, ...	42,000.00	
3,171.50	**John Foster** "	3,171.50	
29,939.33	**Henry Harris** "	29,939.33	
16,413.98	**Gray** Fund for Engravings, . . .	16,386.78	
3,612.01	**Gospel Church** Fund, ...	3,790.44	
2,625.00	Fund of the **Class of 1853**, . . .	3,625.00	
1,000.00	" " " " " **1834**, . . .	1,000.00	
65,643.01	**Walter Hastings** Building Fund, .	2,180.42	
722,691.71	**Price Greenleaf** Fund, ...	718,843.71	
23,743.76	**Gore** Annuity Fund, ...	24,316.71	
5,192.75	**Lucy Osgood** Annuity Fund, . .	5,029.28	
50,785.24	**Bemis** Annuity Fund, ...	50,728.42	
	Dental School (balance), ...	118.98	
8,155.85	Dental Subscription Fund, . . .	8,155.85	
	Fund for Semitic Collection . . .	9,422.14	1,588,762.82
	FUNDS IN TRUST FOR PURPOSES NOT CONNECTED WITH THE COLLEGE.		
15,944.73	**Daniel Williams** Fund for the conversion of the Indians, ...	16,125.90	
4,810.61	**Sarah Winslow** F'd, for the Minister and Teacher at Tyngsborough, Mass.,	4,802.68	20,928.58
$6,874,046.25			$7,121,854.96

Changes in the Funds during the year ending July 31, 1890.

Total amount of Funds and balances, July 31, 1890, as before stated,		$7,121,854.96	
Total amount of Funds and balances, August 1, 1889, as before stated,		6,874,046.25	
Showing a total increase during the year of			$247,808.71
Which is made up as follows: —			
Gifts forming new Funds or increasing old ones,		277,282.03	
Increase of Funds established during the year,		382.85	
Credit balances created, " " "		36,633.16	
Increase of Stock Account, by excess of income over expenditure in College, Library, and University accounts,		5,570.69	
		$319,868.73	
Deduct from this amount			
Decrease more than increase of Funds and balances, which appear both at the beginning and end of the year,	$57,703.23		
Sundry balances used up,	10,508.79		
Loss from change of special investment,	3,848.00		
		72,060.02	
			$247,808.71

Net decrease of Funds and balances as above,	$72,060.02	
Less increase as above,	42,586.70	
Leaving amount of the net decrease of the Funds and balances, excluding gifts for capital account, as is also shown in the following table,		$29,473.32

Statement showing Changes in the Different

Increase of Funds which appear both at the beginning and the end of the year, being the excess of income (including gifts for immediate use) over payments towards the special objects of those Funds.

UNIVERSITY.

Stock Account,	$4,809.44	
President's Fund,	106.03	
Retiring Allowance Fund,	7,184.93	
Robert Treat Paine Fellowship,	29.91	
John Tyndall Scholarship,	50.26	
Sumner Prize Fund,	8.98	
Thomas Cotton Fund,	.15	
Rogers Fellowships,	438.21	
Walter Hastings Fund,	633.34	
Harris Fellowship,	23.79	
James Walker Fellowship,	160.45	
Henry Lee Memorial Fellowship,	500 32	
Ozias Goodwin " "	50.32	
H. B. Rogers " "	50.32	
John O. Sargent Prizes,	104.40	$14,150.85

COLLEGE.

Daniel H. Peirce Fund,	66.10	
Paul Dudley Fund,	38.42	
John W. P. Abbot Fund,	241.02	
Gurney Fund,	4,340.74	
Abbot Scholarship,	160.35	
Alford "	50.93	
Bartlett "	11.52	
Bassett "	7.97	
Bigelow "	84.01	
Browne "	164.95	
R. S. Choate Scholarship,	3.37	
Class of 1802 "	42.60	
" **1815** " **(Kirkland)**,	118.14	
" **1817** "	41.47	
" **1828** "	149.73	
" **1835** "	148.64	
" **1841** "	2.19	
" **1852** " **(Dana)**,	211.53	
" **1867** "	144.69	
Crowninshield "	470.14	
George & Martha Derby Scholarship,	15.87	
W. S. Eliot Scholarship,	14.24	
Greene "	150.92	
Hodges "	451.17	
Amounts carried forward,	$7,130.71	$14,150.85

Funds during the year ending July 31, 1890.

Decrease of Funds, which appear both at the beginning and the end of the year, being the excess of payments over income received (including gifts for immediate use) for the special objects of those Funds.

UNIVERSITY.

John Parker Fellowships,	14.28	
John Thornton Kirkland Fellowship,	466.14	
Lectures on Political Economy Fund,	76.83	$557.25

COLLEGE.

Farrar Scholarship,	11.21	
Price Greenleaf Aid,	1,456.01	
Boylston Prizes for Elocution,	51.92	
Botanical Building Fund,	475.47	
Henry Flynt's Bequest,	.55	
Bowditch Scholarships,	89.96	
Bright "	15.00	
Class of 1814 "	4.27	
Gorham Thomas "	.52	
Walcott "	2.84	
Exhibitions,	37.07	
Palfrey Exhibition,	1.23	
Quincy Tufts Fund,	13.30	
Day Fund,	4.57	
Munroe Fund,	7.08	
Hopkins Gift for "Deturs,"	10.55	
Botanic Department,	681.58	
Carey Building Fund,	26,618.50	
Building Fund for addition to Museum,	7,705.66	
Sundry gifts (unexpended balauces),	248.96	37,486.25

LIBRARY.

Constantius Fund,	81.88	
Waterston "	178.46	
Farrar "	111.80	
Hayward "	23.54	
Lane "	57.35	
Mary Osgood "	126.61	
Salisbury "	2.38	
Denny "	44.49	
Wales "	221.21	
Walker "	72.12	
Sundry gifts (unexpended balances),	52.94	972.28
Amount carried forward,		$38,965.78

Statement showing Changes in the Different

INCREASE.

Amounts brought forward, . . .	$7,130.71	$14,150.85
Levina Hoar Scholarship, ...	65.04	
Hollis "	60.83	
Pennoyer "	5.78	
Perkins "	152.79	
Rodger "	40.76	
Henry B. Rogers "	12.03	
Matthews "	785.60	
Merrick "	52.43	
Morey "	70.30	
Edward Russell "	137.13	
Mary & Leverett Saltonstall Scholarship, .	272.49	
Dorothy Saltonstall Scholarship, ...	45.00	
Slade Scholarship, ...	111.36	
Sever "	7.29	
Sewall "	78.29	
Shattuck "	233.27	
Story "	157.43	
Stoughton "	55.03	
Toppan "	41.95	
Townsend "	8.18	
Whiting "	3.88	
John Glover Fund, ...	74.99	
Bowdoin Prizes, ...	286.86	
Chauncey Wright Fund, ...	32.11	
Scholarship and Beneficiary money returned, . .	57.11	
John E. Thayer Fund, ...	69.27	
Classical Publication Fund, ...	12.85	
Herbarium Fund, ...	4,763.24	
Jefferson Physical Laboratory, ...	51.79	14,845.79

LIBRARY.

Subscription Fund, ...	54.64	
Hollis "	7.96	
Lowell "	508.58	
Shapleigh "	23.57	
Sumner "	122.63	
Bowditch "	11.91	
Bright "	60.11	
Haven "	43.77	
Hayes "	113.43	
Homer "	12.82	
Minot "	6.25	
Lucy Osgood "	33.34	
Amounts carried forward, . . .	$999.01	$28,996.64

Funds during the year ending July 31, 1890. (Continued.)

DECREASE.

Amount brought forward, . . .		$38,965.78

DIVINITY SCHOOL.

General Fund, ...	1,628.66	
Thomas Cary Scholarships, ...	4.23	
Nancy Kendall "	26.65	1,659.54

MEDICAL SCHOOL.

Boylston Fund for Medical Prizes, ...	298.67	
Medical Library Fund, ...	51.13	
Foster income for Medical Students, ...	27.53	377.33

OBSERVATORY.

Uriah A. Boyden Fund, ...	2,160.83	
Josiah Quincy Fund, ...	424.69	
Bruce Fund, ...	6,451.36	9,036.88

FUNDS FOR SPECIAL PURPOSES.

Walter Hastings Building Fund, ...	63,462.59	
Lucy Osgood Annuity Fund, ...	163.47	
Gray Fund for Engravings, ...	27.20	
Bemis Annuity Fund, ...	56.82	
Sarah Winslow "	7.93	63,718.01
		$113,757.54

Sundry balances used up.

S. Johnston bequest for gate-way, ...	10,162.50	
Observatory account (balance), ...	346.29	10,508.79

Price Greenleaf Fund, loss from change of special investment, ...	3,848.00
Amount carried forward, ...	$128,114.33

Statement showing Changes in the Different

INCREASE.

Amounts brought forward, . . .	$999.01	$28,996.64
Sever Fund, ...	53.44	
Tucker "	40.42	
Ward "	17.29	1,110.16

DIVINITY SCHOOL.

Winn Professorship, ...	500.00	
John W. Quinby Fund, ...	61.01	
Jackson Foundation, ...	154.18	
Joshua Clapp Scholarship, ...	69.24	
J. H. Kendall "	81.46	
A. W. Buttrick Fund, ...	84.30	
Beneficiary money returned, ...	118.26	
George Chapman Scholarship, ...	19.55	1,088.00

LAW SCHOOL.

General Fund, ...		12,198.93

LAWRENCE SCIENTIFIC SCHOOL AND MUSEUM OF COMPARATIVE ZOÖLOGY.

General Fund, ...	4,053.31	
Sturgis Hooper Fund, ...	330.00	4,383.31

MEDICAL SCHOOL.

General Fund, ...	326.12	
Warren Fund for Anatomical Museum, ...	261.34	
Boylston Fund for Medical Books, ...	160.90	
D. W. Cheever Scholarship, ...	53.82	802.18

OBSERVATORY.

David Sears Fund, ...	663.91	
Draper Memorial, ...	26.64	690.55

FUNDS FOR SPECIAL PURPOSES.

Bussey Institution, ...	2,473.14	
James Arnold Fund, ...	381.54	
Arnold Arboretum, ...	1,469.53	
Robert Troup Paine Fund, ...	1,532.78	
Gospel Church Fund, ...	178.43	
Gore Annuity "	572.95	
Daniel Williams "	181.17	6,789.54
Amount carried forward, ...		$56,054.31

Funds during the year ending July 31, 1890. (*Continued.*)

DECREASE.

Amount brought forward, ...	**$128,114.83**

Amount carried forward, ...	**$128,114.33**

Statement showing Changes in the Different

INCREASE.

Amount brought forward, . . .		$56,054.31
Increase of Funds established during the year.		
George B. Sohier Prize, ...	148.20	
R. A. Gambrill Scholarship, ...	61.75	
J. Ingersoll Bowditch (Medical) Fund, . . .	172.90	382.85
Credit balances created.		
Henry F. Sears' Gift for addition to Medical School, ...	26,892.04	
Fund for Semitic Collection, ...	9,422.14	
Gift for Semitic Prizes, ...	200.00	
Dental School (balance), ...	118.98	36,633.16
Increase of Stock Account by surplus of income over expenditures, in College, Library, and University Accounts, ...		5,570.69
		$98,641.01

Balance, which is the net decrease of the Funds and balances for the year ending July 31, 1890, excluding gifts for capital account, ...	29,473.82
Total, ...	$128,114.83

Funds during the year ending July 31, 1890. (*Continued.*)

DECREASE.

Amount brought forward, ...	$128,114.33
Total, ...	$128,114.33

The following tables are not found, in their present form, in the Treasurer's books. They are intended to exhibit with some detail the resources and the expenditures of each department of the University. The income of every fund held by the University is given in these tables, and also the sum paid out for the specific object of each and every fund, in case that sum be either less or more than the actual income of the fund. If the object to which the income of a fund is to be applied be a general one, — like salaries, for example, — no separate mention is made in these tables of that appropriation. That particular payment is merged with others of the same kind under the general heading. A balanced summary of these tables will be found on page 65.

Table No. I.

THE UNIVERSITY.

RECEIPTS.

Income of the unappropriated fund heretofore called the Stock Account, at present accumulating,		$4,809.44
Income of the following funds: —		
Insurance and Guaranty,		6,181.87
Israel Munson,		778.05
Leonard Jarvis,		833.48
Samuel D. Bradford,		259.35
Sever,		444.60
John C. Gray,		1,235.00
George B. Dorr,		5,728.77
Seth Turner,		247.00
Henry T. Morgan,		4,048.03
Henry Harris, ½ of income,		739.50
Francis E. Parker,		5,622.56
William Perkins,		1,482.00
Stanton Blake,		247.00
John Cowdin, from special investment,		1,634.14
Walter Hastings, from sp. investm't,	$600.24	
Interest on accumulated income,	33.10	633.34
John L. Russell, interest,	$782.08	
From special investment,	205.50	987.58
Thomas Cotton,		7.66
President's,		3,106.03
Parker Fellowships,		2,785.72
John Thornton Kirkland Fellowship,		558.86
Harris Fellowship,		523.79
James Walker Fellowship,		535.45
Rogers Fellowships,		1,563.21
Robert Treat Paine Fellowship,		529.91
John Tyndall Scholarship,		550.26
Henry Lee Memorial Fellowship,		500.32
Ozias Goodwin " "		500.32
Henry Bromfield Rogers Memorial Fellowship,		500.32
Sumner Prize,		108.98
Amount carried forward,		$47,682.54

TABLE I., CONTINUED.

RECEIPTS.

Amount brought forward, . . .	$47,682.54	
George B. Sohier Prize, ...	148.20	
John O. Sargent Prize, ...	4.40	
Retiring Allowance, ...	7,184.93	
Lectures on Political Economy, ...	323.17	55,343.24
From **John O. Sargent**, gift for prize, ...	100.00	
Andrew P. Peabody, gift for prizes, ...	200.00	
George B. Sohier, gift for prize, ...	250.00	550.00
Balance remaining after dividing the net income among the Funds, ...	453.08	
Use of house by College officer, ...	400.00	
For care of the **Sarah Winslow** Fund, ...	6.13	
Sale of Anniversary volume, ...	7.25	
" Catalogues, Calendars, and Directories, . . .	840.24	1,706.70
		$57,599.94

PAYMENTS.

Overseers' Expenses.		
Advertising, postage, &c., ...	$272.20	
Printing President's Annual Report, ...	936.92	
Printing Treasurer's " "	221.08	
Printing other reports, and auditing Treasurer's accounts, ...	360.50	1,790.70
Office Expenses.		
President's, ...	874.01	
Treasurer's, ...	896.05	
Bursar's, ...	1,864.29	
Supt. of Buildings and Janitors, ...	85.70	
Corporation Rooms (fuel, rent, furniture, &c.), .	2,681.24	6,401.29
Salaries.		
President, ...	8,007.51	
Treasurer and Deputy Treasurer, ...	5,000.00	
Secretary and Asst. Secretary of the University,	3,150.00	
Secretary of the Board of Overseers, ...	200.00	
Bursar, ...	3,000.00	
Bursar's Assistant, ...	1,000.00	
Clerks Treasurer's office, ...	3,800.00	
Superintendent of Buildings, ...	2,400.00	26,557.51
University Lecturers, ...		500.00
Memorial Hall and Sanders Theatre.		
Insurance, ...	98.97	
Repairs, fuel, gas, &c., ...	612.92	711.89
General Expenses.		
Advertising, ...	217.22	
Labor, &c. on grounds outside of College Yard,	3,386.03	
Subscription to Mercantile Agency, ...	300.00	
Amounts carried forward, . . .	$3,903.25	$35,961.39

TABLE I., CONTINUED.

PAYMENTS.

Amounts brought forward, . . .	$3,903.25	$35,961.39
General Expenses.		
Watering streets, and water, ...	256.15	
Watchmen, ...	925.55	
Freight, diplomas, and sundries, ...	426.55	
Printing, ...	291.02	
Music, and other Commencement expenses, . .	374.70	
Annual Catalogue and Calendar, ...	1,797.00	
Repairs and improvements on President's House,	30.95	
Expenses of Delegates to Universities, ...	45.50	
Legal services, ...	25.00	
Quinquennial Catalogue, ...	1,754.16	
Sewer assessment, new fence, &c., ...	709.83	
Plans and surveys, ...	62.60	
Advances for University Lands repaid in part, .	6,500.00	
Interest on Advances for University Lands, . .	2,380.84	19,483.10
Fellowships.		$55,444.49
John Parker, ...	2,800.00	
Harris, ...	500.00	
John Thornton Kirkland, ...	1,025.00	
James Walker, ...	375.00	
Rogers, ...	1,125.00	
Morgan, ...	2,500.00	
Robert Treat Paine, ...	500.00	
John Tyndall Scholarship, ...	500.00	
Ozias Goodwin Memorial, ...	450.00	
Henry Bromfield Rogers Memorial, ...	450.00	10,225.00
Prizes.		
Charles Sumner, ...	100.00	
George B. Sohier, ...	250.00	350.00
		$66,019.49

TABLE No. II.

THE COLLEGE.

RECEIPTS.

From Term Bills.		
Instruction, ...	$194,236.35	
Rents available for general expenses, ...	50,249.22	244,485.57
Income of Scholarship Funds.		
Abbot (accumulating), ...	160.35	
Alford (accumulating), ...	50.93	
Bartlett, ...	261.52	
Bassett, ...	277.97	
Bigelow, ...	584.01	
Bowditch, ...	5,410.04	
Amounts carried forward, . . .	$6,744.82	$244,485.57

TABLE II., CONTINUED.

RECEIPTS.

Amounts brought forward, . . .		$6,744.82	$244,485.57
Bright, ½ income of **Bright** Legacy, ...		1,235.00	
Browne (accumulating), ...		164.95	
Ruluff Sterling Choate, ...		303.37	
Class of 1802, ...		362.60	
" **1814**, ...		145.73	
" **1815 (Kirkland)**, ...		268.14	
" **1817**, ...		191.47	
" **1828** (accumulating), ...		149.73	
" **1835** (accumulating), ...		148.64	
" **1841**, ...		202.19	
" **1852 (Dana)** (accumulating), . . .		211.53	
" **1856**, from special investment, . . .		600.00	
" **1867** (accumulating), ...		144.69	
Crowninshield (accumulating), ...		470.14	
George and **Martha Derby**, ...		265.87	
Wm. Samuel Eliot, ...		264.24	
Farrar, ...		288.79	
Richard Augustine Gambrill, ...		61.75	
Charles Haven Goodwin, ...		300.00	
Greene (accumulating), ...		150.92	
Price Greenleaf, ...		3,000.00	
Levina Hoar (Town of Lincoln), ...		285.04	
Hodges (accumulating), ...		451.17	
Hollis, ...		260.83	
William Merrick, ...		252.43	
Morey, ...		370.30	
Pennoyer. Interest, ...	$110.26		
Annuity, ...	245.52	355.78	
Perkins (accumulating), ...		152.79	
Rodger (accumulating), ...		40.76	
Henry Bromfield Rogers, ...		162.03	
Edward Russell (accumulating), ...		137.13	
Mary & Leverett Saltonstall (accumulating),		272.49	
Dorothy Saltonstall (accumulating), ...		45.00	
Savage, ...		300.00	
Sever, ...		157.29	
Sewall, ...		478.29	
Shattuck, ...		2,283.27	
Slade, ...		278.02	
Story (accumulating), ...		157.43	
Stoughton (accumulating), ...		55.03	
Gorham Thomas, ...		199.48	
Toppan, ...		341.95	
Townsend, ...		1,208.18	
Walcott, ...		197.16	
Whiting, ...		503.88	24,620.30
Amount carried forward, ...			$269,105.87

TABLE II., CONTINUED.

RECEIPTS.

Amount brought forward, . . .		$269,105.87
Received from the Trustee of the **Thayer** Scholarships,	$3,266.67	
" for the **Warren H. Cudworth** "	600.00	
" " " **George Emerson Lowell** "	400.00	
" " " **Matthews** Scholarships (⅓ of net rents of Hall), ...	5,285.60	9,552.27
Other Beneficiary Funds, income of.		
"Exhibitions,"	487.63	
Palfrey "Exhibition,"	88.77	
Samuel Ward. From special investment, . .	50.00	
John Glover (accumulating), ...	74.99	
Quincy Tufts, ...	543.30	
Moses Day, ...	265.43	
Munroe, ...	512.92	
Price Greenleaf Aid, ...	15,632.33	17,655.37
Prize Funds, income of.		
Ward Nicholas Boylston Prizes for Elocution,	$203.08	
James Bowdoin Prizes for Dissertations, . .	636.86	
Edward Hopkins Gift for "Deturs."		
From Trustees, ... $213.80		
Interest on unexpended balance, . 59.77	273.57	
Chauncey Wright, ...	32.11	1,145.62
Funds for Instruction, income of,		
Alford Professorship, ...	$1,370.80	
Boylston "	1,399.85	
Eliot "	1,068.03	
J. Phillips's addition to **Eliot** Professorship,	500.00	
Erving Professorship, ...	172.90	
Fisher "	1,777.96	
Hersey " ⅔ inc. of the Fund,	599.23	
Hollis " (Mathematics), . .	185.10	
Hollis " (Divinity), . . .	1,705.19	
McLean "	2,127.31	
Perkins "	1,037.40	
Plummer "	1,235.99	
Pope "	2,593.50	
Rumford "	2,788.19	
Smith "	1,143.12	
Fund for Permanent Tutors, ...	802.26	
Thos. Lee Fund for the Hersey Professorship,	1,074.15	
Thos. Lee " " Reading, ...	780.37	
Class Subscription, ...	7,163.00	
Henry Flynt, ...	16.21	
Paul Dudley Fund, ...	138.42	
Gifts for salaries, ...	950.00	30,628.98
Amount carried forward, . . .		$328,088.11

TABLE II., CONTINUED.

RECEIPTS.

Amount brought forward, . . .		$328,088.11
Income of **Jonathan Phillips** unrestricted Fund,	$1,556.10	
" " **John A. Blanchard** " "	51.87	
" " **Daniel H. Pierce** " "	661.02	
" " **J. W. P. Abbot** (accumulating),	241.02	
" " Scholarship and Beneficiary money returned, ...	57.11	
" " **John E. Thayer** Fund, ...	758.24	
" " Fund for Religious Services, ...	47.18	
" " **Gurney** Fund, ...	8,715.74	
" " Classical Publication Fund of the **Class of 1856**, ...	312.85	
" " **Increase Sumner Wheeler** Fund, . . .	2,470.00	14,871.13
Hemenway Gymnasium.		
For use of lockers, ...	2,376.00	
For use of, by other departments, ...	1,692.65	4,068.65
Jefferson Physical Laboratory.		
Income from Endowment, ...	3,705.00	
Interest on unexpended balance, ...	16.94	3,721.94
Carey Building Fund.		
Additional gift from **Henry Astor Carey**, . .	11,000.00	
Interest on unexpended balance, ...	776.62	11,776.62
Samuel Johnston bequest for gate-way.		
Gift from **Theodore Lyman**, ...	1,266.03	
Anonymous gift for special use, ...	20.00	
Interest on Fund, ...	77.02	1,363.05
Building Fund for Professor **Cooke's** addition to the University Museum.		
Subscriptions received, ...	21,500.00	
Interest on unexpended balance, ...	246.96	21,746.96
Subscription for Sanskrit Department, ...		750.00
Botanic Garden.		
Income of Fund, ...	2,113.38	
" " the **Lowell** Fund, ...	2,775.00	
" from **John L. Russell** Fund, ...	20.91	
Gifts for present use, ...	1,700.00	
Rent of house, ...	700.00	7,309.29
Botanical Building Fund.		
Subscriptions received, ...	23,100.00	
Interest on unexpended balance, ...	126.29	23,226.29
Herbarium. Income of Fund, ...	935.29	
Gifts for present use, ...	4,416.75	
Received from Professor **Gray's** copyrights, .	2,382.05	
Income from **John L. Russell** Fund, ...	62.75	
Sale of duplicate books, ...	15.00	7,811.84
Amount carried forward, . . .		$424,733.88

TABLE II., CONTINUED.

RECEIPTS.

Amounts brought forward, . . .		$424,733.88
Sundries.		
For Printing by College Press for other departm'ts,	$8,197.08	
For use of rooms by College Society, ...	455.01	
Sale of tickets to Commencement Dinner, . . .	636.00	
" " Chemistry and Physics pamphlets, . . .	259.82	
" " old examination papers, ...	50.19	
Fees for admission examinations, &c., ...	962.87	
Fees for Summer Courses, balance 1889, $649.42		
" " " " 1890, . . . 5,981.50	6,580.92	
Laboratory fees received.		
Chemical, ... $5,339.82		
Physical, ... 1,705.00		
Natural History, ... 1,887.50	8,932.32	
Gifts for books for class-room libraries, ...	481.02	
Gift for apparatus, &c. for Greek Department, .	500.00	
Anonymous gift for College, ...	5.00	27,060.23
Total receipts, ...		$451,794.11

PAYMENTS.

Paid the incumbents of the following Scholarships.

Bartlett, ...	$250.00
Bassett, ...	270.00
Bigelow, ...	500.00
Bowditch, ...	5,500.00
Bright, ...	1,250.00
Ruluff Sterling Choate, ...	300.00
Warren H. Cudworth, ...	600.00
Class of 1802, ...	200.00
" **1814**, ...	150.00
" **1815 (Kirkland)**, ...	150.00
" **1817**, ...	150.00
" **1841**, ...	200.00
" **1856**, ...	600.00
George and Martha Derby, ...	250.00
Wm. Samuel Eliot, ...	250.00
Farrar, ...	300.00
Charles Haven Goodwin, ...	300.00
Price Greenleaf, ...	3,000.00
Levina Hoar, ...	250.00
Hollis, ...	200.00
George Emerson Lowell, ...	400.00
Matthews, ...	4,500.00
William Merrick, ...	200.00
Morey, ...	300.00
Amount carried forward, . . .	$20,070.00

TABLE II., CONTINUED.

PAYMENTS.

Amount brought forward, . . .		$20,070.00	
Pennoyer, ...		350.00	
Henry Bromfield Rogers, ...		150.00	
Savage, ...		300.00	
Sever, ...		150.00	
Sewall, ...		400.00	
Shattuck, ...		2,050.00	
Slade, ...		166.66	
Thayer, ...		3,266.67	
Gorham Thomas, ...		200.00	
Toppan, ...		300.00	
Townsend, ...		1,200.00	
Walcott, ...		200.00	
Whiting, ...		500.00	$29,303.33
Paid other Beneficiaries from the following Funds.			
Exhibitions, ...		524.70	
Palfrey Exhibition, ...		90.00	
Samuel Ward, ...		50.00	
Quincy Tufts, ...		556.60	
Day Fund, ...		270.00	
Munroe Fund, ...		520.00	
Price Greenleaf Aid, ...		17,088.34	19,099.64
Prizes. **Boylston** Prizes for Elocution, ...		255.00	
Bowdoin Prizes for Dissertations, ...		350.00	
"Deturs" from **Hopkins** Fund, ...		284.12	889.12
Hemenway Gymnasium.			
Salaries and wages, ...		5,725.00	
Janitors and cleaning, ...		1,228.49	
Gas, water, fuel, and sundries, ...		1,527.67	
Repairs and improvements, ...		1,217.26	
Apparatus, ...		447.63	10,146.05
Jefferson Physical Laboratory.			
Spent on building and fixtures, ...		1,010.38	
Laboratory expenses, ...	$3,259.77		
Less part paid by the College, . . .	600.00	2,659.77	3,670.15
John E. Thayer Fund.			
Expenses of Quarterly Journal of Economics, . .			688.97
Classical Publication Fund of the **Class of 1856.**			
Printing Studies in Classical Philology, ...			300.00
Subscription for Sanskrit Department.			
Printing Harvard Oriental Series, ...			365.25
Carey Building Fund.			
Paid on account of construction, &c., ...			38,395.12
Building Fund for Professor **Cooke's** addition to the University Museum.			
Paid on account of construction, &c., ...			38,052.62
Amount carried forward, ...			$140,910.25

TABLE II., CONTINUED.

PAYMENTS.

Amount brought forward, ...		$140,910.25
Samuel Johnston bequest for gate-way, ...		11,525.55
Salaries for instruction, ...		183,366.56
Payments for College Edifices not valued on Treasurer's books.		
Repairs and improvements, &c., ...	$8,798.57	
Insurance, ...	2,030.84	10,829.41
Botanic Garden, for labor, repairs, materials, &c., . . .		7,990.87
Botanical Building Fund.		
Paid on account of construction, &c., ...		15,101.76
Herbarium, for salaries, labor, repairs, materials, &c., .	2,548.60	
Purchase of the **James** Herbarium of Mosses, .	500.00	3,048.60
Paid from gifts for Books for Political Economy Dept.,	96.66	
" " " " American History "	117.40	
" " " " French "	5.33	
" " " " Mathematical "	19.36	
" " " " German "	481.03	
" " " " Social Questions,	394.95	1,114.73
gift of **N. C. Nash** for Greek Department, .		500.00
General Expenses.		
Appropriations for collections and laboratories.		
Physical Apparatus (Prof. Trowbridge), 1,000.00		
Mineralogy and Chemistry (Prof. Cooke), 800.00		
Botany (Prof. Goodale), ... 250.00		
Botany (Prof. Farlow), ... 200.00		
Geology (Prof. Shaler), ... 250.00		
Zoölogy (Prof. Mark), ... 250.00		
Psychology (Prof. James), ... 200.00		
Fine Arts (Prof. Norton), ... 200.00		
Geography (Asst. Prof. Davis), ... 100.00		
Petrography (Instructor Wolff), ... 25.00		
Drawing (Instructor Moore), ... 150.00		
Laboratory fees appropriated, ... 8,932.32		
Fuel and service in Nat. Hist. Labor's, 1,500.00		
Furniture and fittings for the Geological Section of the Museum, ... 1,500.00		
Furniture and fittings for Department of Cryptogamic Botany, ... 500.00	15,857.32	
Jefferson Physical Laboratory.		
Expenses paid by the College, ...	600.00	
Appleton Chapel.,		
Preaching and morning services, . 3,245.00		
Organist and Choir-master, ... 1,300.00		
Choir, ... 1,400.00		
Books, hymnals, and music, ... 227.33		
Fuel, gas, cleaning, &c., ... 1,139.17		
Services and wages, ... 155.75	7,467.25	
Amounts carried forward, . . .	$23,924.57	$374,387.73

TABLE II., CONTINUED.

PAYMENTS.

Amounts brought forward, . . .	$23,924.57	$374,387.73
General Expenses.		
Admission examinations, ...	839.63	
Advertising, ...	291.50	
Books and binding, ...	47.44	
Cleaning and care of College buildings not valued on Treasurer's books, ...	10,053.84	
College Yard expenses, labor, material, &c., . .	2,425.24	
Commencement Dinner, ...	552.20	
Dean and Chairman Parietal Committee, salaries, and office expenses, ...	5,358.21	
Fuel, &c., ...	4,705.33	
Furniture, ...	1,193.96	
Freight, diplomas, and sundries, ...	816.60	
Gas, ...	2,370.76	
Music, Class-Day, ...	125.00	
Pews hired in Cambridge churches, ...	1,083.00	
Printing office, expenses, ...	11,518.38	
Services of examiners and proctors, ...	4,395.43	
" " assistants to instructors, ...	1,824.94	
" " undergraduates, ...	321.34	
Supplies, tools, and materials, ...	779.42	
Watchmen, ...	548.58	
Water rates, ...	565.85	
Clerical service for Chairman of Athletic Committee,	400.00	
Summer Schools of 1890 (part of), ...	395.00	
Collation, ...	54.25	
Printing, ...	188.53	74,779.00
Total payments, ...		$449,166.73

TABLE NO. III.

THE LIBRARY.

RECEIPTS.

Income of the following Funds for the purchase of books.		
Subscription for Library, ...	$519.34	
Nathaniel I. Bowditch, ...	104.09	
Bright, ½ income of the **Bright** Legacy, $1,235.00		
Interest on balance, ... 2.57	1,237.57	
Constantius, ½ of income for the purchase of books,	644.33	
Denny, ...	264.34	
Eliza Farrar, ...	274.66	
Horace A. Haven, ...	152.74	
Francis B. Hayes, ...	493.01	
George Hayward, ...	261.33	
Amount carried forward, ...	$3,951.41	

TABLE II., CONTINUED.

PAYMENTS.

Amount brought forward, ...		$140,910.25
Samuel Johnston bequest for gate-way, ...		11,525.55
Salaries for instruction, ...		183,366.56
Payments for College Edifices not valued on Treasurer's books.		
Repairs and improvements, &c., ...	$8,798.57	
Insurance, ...	2,030.84	10,829.41
Botanic Garden, for labor, repairs, materials, &c., . . .		7,990.87
Botanical Building Fund.		
Paid on account of construction, &c., ...		15,101.76
Herbarium, for salaries, labor, repairs, materials, &c., .	2,548.60	
Purchase of the **James** Herbarium of Mosses, .	500.00	3,048.60
Paid from gifts for Books for Political Economy Dept.,	96.66	
" " " " American History "	117.40	
" " " " French "	5.33	
" " " " Mathematical "	19.36	
" " " " German "	481.03	
" " " " Social Questions,	394.95	1,114.73
gift of **N. C. Nash** for Greek Department, .		500.00
General Expenses.		
Appropriations for collections and laboratories.		
Physical Apparatus (Prof. Trowbridge), 1,000.00		
Mineralogy and Chemistry (Prof. Cooke), 800.00		
Botany (Prof. Goodale), ... 250.00		
Botany (Prof. Farlow), ... 200.00		
Geology (Prof. Shaler), ... 250.00		
Zoölogy (Prof. Mark), ... 250.00		
Psychology (Prof. James), ... 200.00		
Fine Arts (Prof. Norton), ... 200.00		
Geography (Asst. Prof. Davis), ... 100.00		
Petrography (Instructor Wolff), ... 25.00		
Drawing (Instructor Moore), ... 150.00		
Laboratory fees appropriated, ... 8,932.32		
Fuel and service in Nat. Hist. Labor's, 1,500.00		
Furniture and fittings for the Geological Section of the Museum, ... 1,500.00		
Furniture and fittings for Department of Cryptogamic Botany, ... 500.00	15,857.32	
Jefferson Physical Laboratory.		
Expenses paid by the College, ...	600.00	
Appleton Chapel..		
Preaching and morning services, . 3,245.00		
Organist and Choir-master, ... 1,300.00		
Choir, ... 1,400.00		
Books, hymnals, and music, ... 227.33		
Fuel, gas, cleaning, &c., ... 1,139.17		
Services and wages, ... 155.75	7,467.25	
Amounts carried forward, . . .	$23,924.57	$374,387.73

TABLE II., CONTINUED.

PAYMENTS.

Amounts brought forward, . . .	$23,924.57	$374,387.73
General Expenses.		
Admission examinations, ...	839.68	
Advertising, ...	291.50	
Books and binding, ...	47.44	
Cleaning and care of College buildings not valued on Treasurer's books, ...	10,053.84	
College Yard expenses, labor, material, &c., . .	2,425.24	
Commencement Dinner, ...	552.20	
Dean and Chairman Parietal Committee, salaries, and office expenses, ...	5,358.21	
Fuel, &c., ...	4,705.33	
Furniture, ...	1,193.96	
Freight, diplomas, and sundries, ...	816.60	
Gas, ...	2,370.76	
Music, Class-Day, ...	125.00	
Pews hired in Cambridge churches, ...	1,083.00	
Printing office, expenses, ...	11,518.38	
Services of examiners and proctors, ...	4,395.43	
" " assistants to instructors, ...	1,824.94	
" " undergraduates, ...	321.34	
Supplies, tools, and materials, ...	779.42	
Watchmen, ...	548.58	
Water rates, ...	565.85	
Clerical service for Chairman of Athletic Committee,	400.00	
Summer Schools of 1890 (part of), ...	395.00	
Collation, ...	54.25	
Printing, ...	188.53	74,779.00
Total payments, ...		$449,166.78

TABLE NO. III.

THE LIBRARY.

RECEIPTS.

Income of the following Funds for the purchase of books.		
Subscription for Library, ...		$519.34
Nathaniel I. Bowditch, ...		104.09
Bright, ½ income of the **Bright** Legacy,	$1,235.00	
Interest on balance, ...	2.57	1,237.57
Constantius, ½ of income for the purchase of books,		644.33
Denny, ...		264.34
Eliza Farrar, ...		274.66
Horace A. Haven, ...		152.74
Francis B. Hayes, ...		493.01
George Hayward, ...		261.33
Amount carried forward, ...		$3,951.41

TABLE III., CONTINUED.

RECEIPTS.

Amount brought forward, ...		$3,951.41	
Thomas Hollis, ...		118.07	
Sidney Homer, ...		103.39	
Frederick A. Lane, ...		265.18	
Lowell, ...		1,084.13	
Charles Minot. From special investm't,	$4,200.00		
Interest on unexpended balance,	1.74	4,201.74	
Lucy Osgood, ...		352.22	
Mary Osgood, ...		351.78	
Stephen Salisbury, ...		264.34	
Sever, ...		989.93	
Samuel Shapleigh, ...		202.24	
Charles Sumner, ...		1,846.92	
Ichabod Tucker. From special investm't,	$200.00		
Interest on unexpended balance,	.35	200.35	
George W. Wales. Gift, ...	200.00		
Interest on unexpended balance,	20.60	220.60	
James Walker, ...		790.84	
Thomas W. Ward, ...		260.88	
Executors of **Robert Waterston.**			
Interest on unexpended balance, ...		37.54	$15,241.56
Gift from Dante Society, ...		25.00	
Sale of duplicates, &c., ...		9.15	34.15
James Savage Fund for general expenses (⅓ of income),		1,331.10	
Constantius " " " ½ " "		644.32	
Daniel Treadwell " " "		507.83	
Daniel Austin " " "		307.76	
Eben Wright " " "		4,940.00	
Jarvis " " "		24.70	
Price Greenleaf " " "		15,632.34	23,388.05
Fees for use of Library, ...		225.00	
Sale of Bulletins, &c., ...		38.21	263.21
			$38,926.97

PAYMENTS.

For Books from		
Subscription Fund, ...	$464.70	
Bowditch "	92.18	
Bright "	1,177.46	
Constantius "	725.71	
Denny "	308.83	
Farrar "	386.46	
Haven "	108.97	
Hayes "	379.58	
Hayward "	284.87	
Hollis "	110.11	
Amount carried forward, ...	$4,088.87	

Table III., continued.

PAYMENTS.

	Amount brought forward,	$4,038.87	
Homer	Fund,	90.57	
Lane	"	322.53	
Lowell	"	575.55	
Minot	"	4,195.49	
Lucy Osgood	"	318.88	
Mary Osgood	"	478.39	
Salisbury	"	266.72	
Sever	"	936.49	
Shapleigh	"	178.67	
Sumner	"	1,724.29	
Tucker	"	159.93	
Wales	"	441.81	
Walker	"	862.96	
Ward	"	243.59	
Waterston	"	216.00	
Dante Society money,		57.42	
Duplicate money,		20.17	
Subscription of 1880,		9.29	
History XIII.,		.21	$15,137.83
Salaries and wages,		21,256.37	
Binding,		1,299.80	
Stationery, postage, &c.,		467.78	
Fuel,		1,071.82	
Repairs and improvements,		1,831.02	
Freight, water, and sundries,		653.59	
Janitors and cleaning,		868.61	
Furniture,		335.88	
Bulletins, and other printing,		2,078.53	
Legal services,		54.41	29,917.81
			$45,055.64

Table No. IV.

DIVINITY SCHOOL.

RECEIPTS.

Income of the following Funds applicable to Salaries.

General Fund,		$1,434.18
Benjamin Bussey Professorship,		1,856.65
Parkman Professorship,		791.19
John Hancock Professorship,		296.80
Winn Professorship of Ecclesiastical History,		2,363.59
Samuel Dexter,		1,001.83
Henry Lienow,		453.74
Mary P. Townsend,		259.35
	Amount carried forward,	$8,457.33

TABLE IV., CONTINUED.

RECEIPTS.

Amount brought forward,	$8,457.33	
Winthrop Ward,	103.74	
Samuel Hoar,	51.87	
Abraham W. Fuller,	51.87	
Caroline Merriam,	51.87	
Joseph Baker,	389.03	
Thomas Tileston of New York Endowment,	1,976.00	
Oliver Ames,	839.80	
Henry P. Kidder,	494.00	
Abby Crocker Richmond,	49.40	
New Endowment,	3,528.49	$15,993.40
Income of Scholarship Funds.		
Jackson Foundation,	687.50	
Thomas Cary,	254.11	
George Chapman,	119.55	
Joshua Clapp,	194.24	
J. Henry Kendall,	221.46	
Nancy Kendall,	160.01	1,636.87
Income of other Funds.		
Joshua Clapp,	107.59	
William Pomroy,	51.87	
Hannah C. Andrews,	25.94	
Lewis Gould,	45.00	
Daniel Austin,	43.97	
Abner W. Buttrick,	684.30	
Adams Ayer,	49.40	
John W. Quinby,	61.01	
John L. Russell,	12.35	
Interest on Beneficiary money returned,	118.26	1,149.69
Benjamin Bussey Trust (¼ of net income for use of this School),		4,486.53
William B. Spooner Legacy.		
Interest received from Trustees,		173.62
Gifts for present use,		456.69
Sale of duplicate books,		148.45
Term Bills.		
For instruction,	1,983.47	
For rents,	2,695.51	4,678.98
		$28,674.23

PAYMENTS.

For Salaries for instruction,	$18,794.81	
Services and wages,	1,872.16	
Labor, repairs, and improvements,	2,715.32	
Cleaning and care of rooms,	1,392.68	
Books and binding,	365.62	
Amount carried forward,	$25,140.59	

TABLE IV., CONTINUED.

PAYMENTS.

Amount brought forward, . . .	$25,140.59	
Printing, ...	133.88	
Fuel, gas, and water, ...	1,060.51	
Stationery, postage, diplomas, and sundries, . . .	332.63	
Collation, ...	75.00	
Furniture, ...	156.00	
Insurance, ...	50.00	
Proportion of expenses of Gymnasium, ...	167.35	
Advertising, ...	182.84	$27,298.80
Paid the incumbents of the following Scholarships.		
Jackson Foundation, ...	533.32	
Thomas Cary, ...	258.34	
George Chapman, ...	100.00	
Joshua Clapp, ...	125.00	
Nancy Kendall, ...	186.66	
J. Henry Kendall, ...	140.00	1,343.32
Paid beneficiaries from the following Funds:		
Abner W. Buttrick, ...	550.00	
William Pomroy, ...	53.65	603.65
		$29,245.77

TABLE No. V.

LAW SCHOOL.

RECEIPTS.

Income of the following Funds.		
Law School, balance, ...	$1,004.75	
Nathan Dane Professorship, ...	778.05	
Benjamin Bussey "	1,184.61	
Isaac Royall "	412.05	
New Professorship, ...	4,692.75	
Law School Book Fund, ...	1,962.66	
Benjamin Bussey Trust (¼ of net income for use of this School), ...	4,436.53	$14,471.40
Term Bills.		
For instruction, ...		36,465.00
Gift from Harvard Law School Association to increase the instruction in Constitutional Law, ...	500.00	
Anonymous gift for instruction in the Peculiarities of Massachusetts Law, ...	1,000.00	1,500.00
Sale of Catalogues, ...		18.15
		$52,454.55

PAYMENTS.

For Salaries for instruction, ...	$26,000.00	
Librarian and Assistants, ...	3,915.33	
Janitors, cleaning, &c., ...	1,056.67	
Amount carried forward, . . .	$30,972.00	

TABLE V., CONTINUED.

PAYMENTS.

Amount brought forward, . . .	$30,972.00	
Books and binding, ...	2,345.17	
Fuel, ...	837 17	
Gas, ...	708.15	
Printing	1,161.75	
Scholarships, ...	1,350.00	
Labor, repairs, and improvements, ...	605.71	
Stationery and postage, ...	480.97	
Freight, diplomas, and sundries, ...	201.34	
Water rates, ...	30.20	
Furniture, ...	222.78	
Services of examiners and proctors, ...	105.75	
Proportion of expenses of Gymnasium, ...	1,214.50	
Advertising, ...	25.13	$40,260.62

TABLE No. VI.

MEDICAL SCHOOL.

RECEIPTS.

Income of the following Funds.			
Medical School, balance, ...		$2,859.62	
Jackson, ...		948.13	
Warren, for Anatomical Museum, ...		636.27	
Ward Nicholas Boylston, for Medical Prizes, .		178.83	
Ward Nicholas Boylston, for Medical Books,		160.90	
George C. Shattuck, ...		846.17	
Hersey Professorship, $\frac{2}{3}$ income of the fund, . .		399.49	
Medical Library Fund, ...		102.65	
Quincy Tufts, ...		98.80	
David Williams Cheever Scholarship, ...		253.82	
Edward M. Barringer, ...		1,260.34	
Henry Harris, $\frac{1}{3}$ of income, ...		739.49	
Mary W. Swett, ...		778.79	
Samuel W. Swett, ...		988.00	
Samuel E. Fitz, ...		90.70	
J. Ingersoll Bowditch, ...		172.90	
New subscription, ...		691.60	
John Foster Income for Medical Students.			
Interest on unexpended balance, . . .	$10.77		
Income of **John Foster** Fund every second year, ...	156.70	167.47	$11,373.97
Henry F. Sears' gift for addition to Medical School, .		35,000.00	
Interest on unexpended balance, ...		942.04	35,942.04
Gifts for present use, ...			1,045.00
Amount carried forward, ...			$48,361.01

TABLE VI., CONTINUED.

RECEIPTS.

Amount brought forward, ...		$48,361.01
Term Bills.		
For instruction, ...	$54,212.00	
For graduation fees, ...	2,250.00	
In Chemical Laboratory, breakage and chemicals,	943.62	
In Practical Anatomy, for use of material, . . .	612.00	
For extra examination fees, ...	131.00	58,148.62
From Dental and Veterinary Schools for Laboratory instruction, ...		290.00
Repayment of advances for the purchase of microscopes,		40.00
Use of lecture room by Medical Society, ...		30.00
		$106,869.63

PAYMENTS.

Boylston Medical Prizes.			
Prizes, ...		$400.00	
Advertising, ...		77.50	$477.50
Warren Anatomical Museum.			
Expenses and additions to collection, ...			374.93
Edward M. Barringer Scholarship No. 1, .	$300.00		
" " 2, .	200.00	500.00	
David Williams Cheever Scholarship, ...		200.00	
Faculty Scholarships, ...		800.00	
Beneficiaries from **Foster** income, ...		195.00	1,695.00
Chemical Laboratory, ...		1,449.04	
Physiological Laboratory, ...		400.00	
Anatomy, ...		1,750.00	
Pathological Laboratory, ...		100.00	
Bacteriological Laboratory, ...		200.00	
Obstetrics, ...		300.00	
Histology and Embryology, ...		200.00	
Materia Medica, ...		50.00	
Bandaging and apparatus, ...		167.75	
Model, Surgical landmarks, ...		15.00	
Hygiene, ...		50.00	
Salaries for instruction, ...		47,200.00	
Repairs and improvements, ...		2,034.77	
Microscopes, ...		305.00	54,221.56
Henry F. Sears' gift for new addition.			
Paid on account of construction, &c., ...			9,050.00
Graduates courses, fees repaid to Instructors, ...		1,190.00	
Summer " " " " "		1,245.00	2,435.00
General Expenses.			
Advertising and catalogues, ...		1,010.00	
Books, from Library Fund, ...		153.78	
Fuel, ...		1,576.39	
Gas, ...		843.44	
Amounts carried forward, . . .		$3,583.61	$68,253.99

TABLE VI., CONTINUED.

PAYMENTS.

Amounts brought forward, ...		$3,583.61	$68,253.99
General Expenses.			
Insurance, ...		35.00	
Printing, ...		435.75	
Services and wages, ...		2,526.00	
Stationery, postage, and sundries, ...		128.01	
Water rates, ...		631.20	
Furniture, ...		96.25	
Janitors and cleaning, ...		3,204.62	
Freight, diplomas, &c., ...		250.74	
Supplies, tools, and material, ...		234.67	11,125.85
			$79,379.84

TABLE No. VII.

DENTAL SCHOOL.

RECEIPTS.

Income of Endowment Fund, ...		$402.91	
Term Bills, for instruction, ...		5,220.00	
Fees from Infirmary, ...	$3,098.49		
" " Laboratory, ...	1,370.75	4,469.24	
Gifts for present use, ...		135.00	
Sale of old metal, ...		82.00	$10,309.15

PAYMENTS.

Advertising and catalogues, ...	$226.29	
Care of rooms and cleaning, ...	1,155.20	
Freight, diplomas, &c., ...	159.47	
Fuel, ...	240.68	
Gas, ...	144.17	
Supplies, apparatus, &c., ...	1,739.04	
Interest on debt, ...	132.98	
Printing, ...	145.50	
Repairs and improvements, ...	90.37	
Salaries for instruction, ...	3,550.00	
Stationery and postage, ...	116.67	
Water rates, ...	123.40	
Medical School, for Laboratory instruction, ...	150.00	$7,973.77

Table No. VIII.

LAWRENCE SCIENTIFIC SCHOOL, AND MUSEUM OF COMPARATIVE ZOÖLOGY.

RECEIPTS.

Income of the following Funds.			
Lawrence Scientific School, balance		$59.87	
Professorship of Engineering,		1,917.07	
Abbott Lawrence,		3,039.88	
James Lawrence,		2,488.53	
John B. Barringer,		1,515.94	
Gray Fund for Zoölogical Museum,		2,470.00	
Sturgis Hooper,		4,940.00	
Agassiz Memorial. Interest,	$13,734.39		
From special investment,	995.45	14,729.84	
Teachers and Pupils,		375.14	
Humboldt,		382.41	
Permanent Fund for Museum of Zoölogy,		5,802.97	$37,721.65
Term Bills, for instruction,			9,995.20
			$47,716.85

PAYMENTS.

Paid on the order of the Faculty of the Museum of Comparative Zoölogy, from the following Funds.			
Gray,		$2,470.00	
Agassiz Memorial, general expenses,		11,361.01	
Agassiz Memorial, advances repaid,		3,368.83	
Teachers and Pupils,		375.14	
Humboldt,		382.41	
Permanent,		5,802.97	
Sturgis Hooper.			
Professor of Geology,	$4,500.00		
Expenses in Geology,	110.00	4,610.00	$28,370.36
Salaries for instruction,		11,901.22	
Instruments and apparatus,		14.51	
Books, Engineering Department,		100.00	
Books and binding,		151.16	
Printing,		75.50	
Fuel,		346.44	
Gas, water, freight, and sundries,		42.81	
Janitor and cleaning,		332.00	
Labor and repairs,		115.02	
Expenses Chemical Laboratory (part of),		15.94	
Scholarships,		1,500.00	
Proportion of expenses of Gymnasium,		310.80	
Furniture,		57.78	14,963.18
			$43,333.54

Table No. IX.

OBSERVATORY.

RECEIPTS.

Income of the following Funds.		
Observatory, balance,	$17.09	
Edward B. Phillips,	5,448.52	
James Hayward,	1,037.40	
Robert Treat Paine,	5,933.43	
Paine Professorship of Practical Astronomy,	2,470.00	
Uriah A. Boyden,	11,372.23	
Augustus Story,	660.97	
David Sears,	1,327.82	
Josiah Quincy,	600.01	
James Savage (¼ of net income),	443.70	
Charlotte Harris,	98.80	
Thomas G. Appleton,	247.00	
J. Ingersoll Bowditch,	72.03	
New Endowment,	2,470.00	$32,199.00
From sale of time signals,	2,852.50	
" " " Observatory publications,	2.30	2,854.80
Mrs. Henry Draper, on account of gift for special research (additional),	10,000.00	
Interest on unexpended balance,	38.19	10,038.19
Miss Catherine W. Bruce's gift for a photographic telescope, interest on unexpended balance,		1,278.64
From **A. Lawrence Rotch,** on account of repayment of expense of publishing the Blue Hill observations,		250.00
		$46,615.63

PAYMENTS.

From the following Funds.		
Uriah A. Boyden, supplies, apparatus, services, &c.,		$18,533.06
Draper Memorial, supplies, apparatus, services, &c.,		10,011.55
Bruce gift for telescope,		7,725.00
Josiah Quincy, printing Observatory publications,		1,027.00
Salaries and wages,	14,664.79	
Cleaning and care of Observatory,	457.61	
Gas,	129.15	
Instruments and apparatus, including repairs on same,	1,303.19	
Repairs and improvements on buildings and grounds,	1,776.61	
Stationery, postage, and telegraphing,	674.18	
Fuel,	149.80	
Books and binding,	609.86	
Water rates,	79.00	
Printing,	1,852.95	
Freight, chemicals, and sundries,	807.09	
Furniture,	172.30	
Amounts carried forward,	$22,176.53	$32,296.61

TABLE IX., CONTINUED.

PAYMENTS.

Amounts brought forward, . . .	$22,176.53	$32,296.61
Interest on advances, ...	80.84	
On account of advances to Observatory real estate repaid,	419.16	
Supplies and materials, ...	445.58	
Rent of house, ...	90.00	23,212.11
		$55,508.72

TABLE No. X.

BUSSEY INSTITUTION.

RECEIPTS.

Interest on unexpended balance, ...	$317.84	
From **Bussey** Trust (½ net income), ...	8,873.06	
From **Bussey** Building Fund, ...	30.08	
Fees for instruction, ...	230.00	
Sale of wood, hay, and sundries, ...	1,274.58	
Horticultural Department, sale of flowers and plants for botanical purposes, &c., ...	551.00	
Board of horses, cattle, &c., ...	1,249.05	$12,525.61

PAYMENTS.

For Salaries, ...	5,500.00	
Books, ...	14.27	
Fuel for school building, ...	59.38	
Services and wages, ...	1,820.69	
Horticultural Department, expenses, ...	1,008.36	
Repairs and improvements, ...	727.26	
Grain, ...	312.98	
Advertising, ...	52.68	
Horse shoeing, ...	92.05	
Seeds, ...	29.83	
Farming tools, ...	190.26	
Freight, telegrams, weighing hay, &c., ...	199.71	
Insurance, ...	45.00	$10,052.47

James Arnold Fund.

Receipts.

Income of Fund, ...	$7,680.77

Payments.

19/20 of income carried to Arnold Arboretum, ...	$7,249.23

TABLE X., CONTINUED.

Arnold Arboretum.

Receipts.

Income of unexpended balance of Fund,		$226.80
From James Arnold Fund,		7,249.23
Sale of wood, grass, &c.,		1,924.05 $9,399.58

Payments.

Salary of Director and Assistant,	$3,000.00	
Expenses of Arboretum, services, labor, &c.,	4,930.05	$7,930.05

School of Veterinary Medicine.

Receipts.

Term bills, for instruction,	$2,195.00	
" " graduation fees,	180.00	
" " for extra examinations,	12.00	
" " use of microscopes,	8.00	$2,395.00
Subscribers to Veterinary Hospital,		1,910.00
Fees from Hospital and Forge,		15,393.45 $19,698.45

Payments.

Salaries and wages,	$10,656.48
Instruments and apparatus,	120.22
Rent,	1,280.00
Hay, grain, supplies, &c.,	4,092.44
Printing,	50.50
Stationery, postage, telephone, &c.,	265.62
Repairs and improvements,	372.81
Fuel,	209.98
Water,	58.45
Gas,	164.19
Freight, diplomas, and sundries,	236.63
Taxes,	259.29
Interest on advances,	1,084.23
Advertising and catalogues,	224.26
Medical School for Laboratory instruction,	140.00
Insurance,	120.00
Legal expenses,	25.00 $19,310.10

TABLE NO. XI.

MISCELLANEOUS FUNDS.

Bussey Trust.

Receipts.

Net income from Real Estate,	$24,046.12

Payments.

Annuities,	$6,300.00	
One-half of the remaining income to Bussey Institution,	8,873.06	
One-quarter " " " Divinity School,	4,436.53	
" " " " " Law School,	4,436.53	$24,046.12

TABLE XI., CONTINUED.

Gray Fund for Engravings.

Receipts.

Interest on Fund,	$790.25

Payments.

To the Treasurer of the Museum of Fine Arts,	$817.45

Annuity Funds.

Receipts.

Gore, interest,	$1,172.95	
Lucy Osgood, interest,	256.53	
Bemis, interest,	2,508.78	$3,938.26

Payments.

Gore, annuities,	$600.00	
Lucy Osgood, annuity,	420.00	
Bemis, annuity,	2,565.60	$3,585.60

Price Greenleaf Fund.

Receipts.

Income of special investment,	$34,264.67

Payments.

Scholarships,	$3,000.00	
Beneficiary money transferred to College account,	15,632.33	
Balance of income for Library expenses,	15,632.34	$34,264.67

Daniel Williams Fund.

Receipts.

Interest on Fund,	$787.68

Payments.

Treasurer of Herring Pond Indians,	$66.48	
" " Mashpee Indians,	540.03	$606.51

Sarah Winslow Fund.

Receipts.

Interest on Fund,	$237.66

Payments.

Minister at Tyngsborough, Mass.,	$119.73	
Teacher at " "	119.73	
Commission on income credited to University,	6.13	$245.59

TABLE XI., CONTINUED.

Fund for Semitic Collection.

Receipts.

From **Jacob H. Schiff**,	$10,100.00	
" other subscribers,	525.00	
Interest on unexpended balance,	164.11	$10,789.11

Payments.

For books, coins, tablets, expenses, &c.,	$1,866.97

Walter Hastings Building Fund.

Receipts.

Additional amount received from Trustees,	$36,000.00	
Interest on unexpended balance,	443.56	$36,443.56

Payments.

On account of construction,	$99,906.15

Class Funds.

Receipts.

Class of 1834, income of special investment,	$40.00	
" " **1853**, " " " "	105.00	$145.00

Payments.

To Secretary of the **Class of 1834**,	$40.00	
" " " " " " **1853**,	105.00	$145.00

Sundry Accounts.

Receipts.

Gospel Church Fd. (accumulating). Interest on Fund,	$178.43	
Robert Troup Paine Fd. " From special investm't,	1,532.78	
Advances to Observatory, from general investments, . .	200.47	$1,911.68

Payments.

Annuity for **Class of 1802**,	$120.00	
Gurney annuities,	1,000.00	
Advances to Dental School repaid, in full,	2,216.40	
" " School of Veterinary Medicine repaid, in part,	388.35	
Price Greenleaf Fund, loss from change of special investment,	3,848.00	$7,572.75

GENERAL SUMMARY OF THE TABLES.

			Receipts.	Payments.
Table	I.	University,	$57,599.94	$66,019.49
Table	II.	College,	451,794.11	449,166.73
Table	III.	Library,	38,926.97	45,055.64
Table	IV.	Divinity School,	28,674.23	29,245.77
Table	V.	Law School,	52,454.55	40,260.62
Table	VI.	Medical School,	106,869.63	79,379.84
Table	VII.	Dental School,	10,309.15	7,973.77
Table	VIII.	Lawrence Scientific School and Museum of Comparative Zoölogy,	47,716.85	43,333.54
Table	IX.	Observatory,	46,615.63	55,508.72
Table	X.	Bussey Institution,	12,525.61	10,052.47
		James Arnold Fund,	7,630.77	7,249.23
		Arnold Arboretum,	9,399.58	7,930.05
		School of Veterinary Medicine,	19,698.45	19,310.10
Table	XI.	Bussey Trust,	24,046.12	24,046.12
		Gray Fund for Engravings,	790.25	817.45
		Annuity Funds,	3,938.26	3,585.60
		Price Greenleaf Fund,	34,264.67	34,264.67
		Daniel Williams Fund,	787.68	606.51
		Sarah Winslow Fund,	237.66	245.59
		Fund for Semitic Collection,	10,789.11	1,366.97
		Walter Hastings Building Fund,	36,448.56	99,906.15
		Class Funds,	145.00	145.00
		Sundry Accounts,	1,911.68	7,572.75
			$1,003,569.46	$1,033,042.78
				1,003,569.46
		Balance,		$29,473.32

Which is the net decrease of the Funds and balances, excluding gifts for capital account, as also shown on page 33.

Certificate of the Joint Committee of the Corporation and Overseers of Harvard College, for examining the Books and Accounts of the Treasurer entered in the Journal kept by him.

The undersigned, a joint committee of the Corporation and Overseers of Harvard College to examine the books and accounts of the Treasurer for the year ending July 31, 1890, have, with the assistance of an expert chosen by them, examined and audited the Cash book covering the period from August 1, 1889, to July 31, 1890, inclusive, and have seen that all the bonds, notes, mortgages, certificates of stock, and other evidences of property, which were received by him and on hand at the beginning of said year, are now in his possession, or are fully accounted for by entries made therein; they have also noticed all payments, both of principal and interest, indorsed on any of said bonds or notes, and have seen that the amounts so indorsed have been duly credited to the College.

They have carefully examined all notes, bonds, mortgages, and other securities invested during the said year, and are of opinion that all such investments have been judiciously made.

They have in like manner satisfied themselves that all the entries for moneys expended by the Treasurer, or charged in his books to the College, are well vouched; such of them as are not supported by counter entries being proved by regular vouchers and receipts.

They have also seen that all the entries for said year are duly transferred to the Ledger, and that the accounts there are rightly cast, and the balances carried forward correctly to new accounts.

(Signed,)

WILLIAM C. ENDICOTT,
HENRY P. WALCOTT,
} *Committee on the part of the Corporation.*

T. JEFFERSON COOLIDGE,
CHARLES HENRY PARKER.
GEORGE B. CHASE,
ISRAEL M. SPELMAN,
JACOB C. ROGERS,
JOHN L. GARDNER,
ROBERT BACON,
} *Committee on the part of the Board of Overseers.*

Boston, January 6, 1891.

ANNUAL REPORTS

OF THE

PRESIDENT AND TREASURER

OF

HARVARD COLLEGE.

1890-91.

CAMBRIDGE, MASS.
PUBLISHED BY THE UNIVERSITY.
1892.

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PRESIDENT'S REPORT FOR 1890-91.

To the Board of Overseers: —

The President of the University has the honor to submit the following Report for the academic year 1890–91; namely, from Sept. 25th, 1890, to Oct. 1st, 1891: —

James Russell Lowell, Smith Professor of the French and Spanish Languages and Literatures, and Professor of Belles Lettres, *Emeritus*, and a member of the Board of Overseers, died in Cambridge, on the 13th of August, 1891, in the seventy-third year of his age. Mr. Lowell was chosen Smith Professor in 1855, and entered upon the duties of his office in 1857 — the third incumbent of the chair already made illustrious by Ticknor and Longfellow. He discharged the duties of his professorship with unfailing assiduity for twenty years, with the exception of a period of two years which he spent in Europe. His literary sympathies were wide, and his knowledge of books extensive and thorough; yet scholarship was not his chief characteristic, but rather wisdom. Himself a poet and a prose writer of great distinction, he was also an admirable critic of both prose and verse. From 1877 to 1885 he was absent in Europe on the public service; but on his return he resumed the duties of his chair for a few months. In 1886 he resigned his professorship and was made Professor, *Emeritus*. On two memorable occasions in the history of the College Mr. Lowell had the chief part. The first was the Commemoration Day in June, 1865, at the close of the Civil War, when Mr. Lowell read his commemoration ode, the most exalted and fervent patriotic poem which America has produced. The second was the celebration of the two hundred and fiftieth anniversary of the College, when he made the principal address, — an address worthy of a great occasion. In 1887 he was elected by the alumni to the Board of Overseers.

Mr. Lowell inherited from his father and his grandfather a strong affection for Harvard College. Whenever he had

opportunity to serve her he was mindful of her interests. H made to the Library repeated gifts of carefully chosen book many of them rare and costly, and at his death his will wa found to contain the following bequest: "I give to the Corpo ration of Harvard College, the Library thereof, my copy o Webster on Witchcraft, formerly belonging to Increase Mathe President of the College, and also any books from my librar of which the College Library does not already possess copie or of which the copies or editions in my library, are for an reason whatever, preferable to those possessed by the Colleg Library." In his generation no graduate of the University ha been so eminent alike in literature and in the public service.

Orlando Witherspoon Doe, M.D., Clinical Instructor i Gynaecology, died at Boston, on the 10th of December, 189 in the forty-eighth year of his age. He was a valued instructo and a physician of proved merit and well-deserved reputatio The Medical School had had the advantage of his services fo three years.

Lists of the resignations and appointments of the year will b found in the Appendix (pp. 201–208).

The Medical School suffered the loss of two valued professo by resignation at the end of the year. Dr. Francis Minot ha served in the Department of Theory and Practice for twenty two years, — for two years (1869–71) as Instructor; for thre years as Assistant Professor (1871–74); and for seventee years as full Professor (1874–91). Dr. Henry Willard Willian had served as University Lecturer for two years (1869–71 and as Professor of Ophthalmology for twenty years (1871–91 Both gentlemen have done good service to the Medical Scho by their assiduous teaching, by their punctuality and goo judgment as members of the Faculty, and by the general infl ence of their high professional standing. At the time of the resignation they were the two senior professors of the Schoo

Professor Clement Lawrence Smith resigned the office Dean of Harvard College on June 24th, 1891, after havi served as Dean for nine years and as assistant to the form Dean — Professor Dunbar — for three years. No professor h served so long in that office since it was created. The years which he was the chief executive of the College Faculty we

years of rapid change and growth, as appears very plainly in the series of clear, accurate, and full reports on Harvard College which he contributed to the President's annual reports. Through all these changes, some of which gave rise to long discussions and wide differences of opinion, Professor Smith possessed the confidence of the whole Faculty. On retiring from the office of Dean, after this long and honorable service, he resumed the full duties of his professorship of Latin.

Winfield Scott Chaplin, Professor of Engineering and Dean of the Lawrence Scientific School, resigned his office after a service of six years to accept the Chancellorship of the Washington University at St. Louis. During Professor Chaplin's short term of service the number of students in the Scientific School rose from fourteen to eighty-eight, a growth which has been continued during the current year. New life was infused into every department of the School and it started on a new career of usefulness. Professor Chaplin was also Chairman of the Parietal Committee, and in that capacity he wrought considerable improvements in the discipline of the Cambridge departments of the University. His vigor, moderation, good sense, and good humor gave him a strong and wholesome influence with the students and with his colleagues, and his departure from the University was univerally regretted, although his promotion to an honorable and responsible position gave general satisfaction.

Adolphe Cohn, Assistant Professor of French, resigned his position to accept a full professorship in Columbia College. Professor Cohn came hither from Columbia College as an instructor in 1884. In 1885 he was made Assistant Professor, and this appointment was renewed in 1890. His return to Columbia College to a congenial professorship of the Romance Languages and Literatures was a deserved promotion.

Two members of the Board of Preachers for the year 1890–91 retired at the end of the year, namely, Rev. Phillips Brooks, D.D., and Rev. William Lawrence, D.D. Dr. Brooks had served the University in this capacity with unflagging devotion for ten consecutive years, — ever since the retirement of Rev. Andrew P. Peabody, D.D., from the Plummer Professorship. His fervor, eloquence, and breadth of view have done much to

make the present mode of conducting the religious services o the University successful, and to commend it to the student and officers of the University and to the educated public. Professor Lawrence had served for two consecutive years. The places of these gentlemen were filled by the appointment o Rev. Leighton Parks, of Boston, and Rev. Charles Carrol Everett, Dean of the Divinity School. Rev. Brooke Herford D.D., and Rev. Henry Van Dyke, D.D., were reappointed preachers to the University. Rev. Francis G. Peabody Plummer Professor of Christian Morals, having obtained leave of absence for the year 1891–92, Professor David Gordon Lyon was appointed by the Corporation to act as Professor Peabody's substitute in the general administration of the Chapel during the current year.

Of the six ministers who will conduct the services in Appleton Chapel during the year 1891–92, one belongs to the Trinitarian Congregational Church, one to the Presbyterian, one to the Baptist, one to the Episcopal, and two to the Unitarian Congregational.

Among the appointments of the year, for terms longer than one year, are the appointments of Assistant Professors Hanus, Marsh, Thaxter, and Schilling, all of which were clear additions to the University staff. Professor Hanus is the first person ever appointed here to teach the History, Theory, and Art of Teaching; Professor Marsh's subject — Comparative Literature — is also a new one at the University; Professor Thaxter although for the first year he takes the place of Professor Farlow who has leave of absence, will, after that year, be an additional teacher in the Department of Cryptogamic Botany and Professor Schilling is an additional member of the German Department. All these gentlemen have had valuable experience in other institutions.

The lists of annual appointments for the year 1890–91, and for the year 1891–92, show additional appointments in all the departments of the University, necessitated by the increase of students in both those years.

A new University officer with an old title — that of Regent — was appointed in June, 1891, when Assistant Professor George Alonzo Bartlett was promoted to be Associate Professor of

German and Regent. The duties of this office are in part those heretofore performed by the Chairman of the Parietal Committee. The Regent will select and supervise the proctors who reside in College buildings, or in buildings to which the superintendence of the College extends. He is expected to keep himself informed of the condition and management of all such buildings, whether belonging to the University or to private individuals, his watchfulness extending to their sanitary condition as well as to the order preserved in them. He is to take cognizance also of all cases of serious sickness among the students, to the end that suitable medical attendance and nursing may be provided in due season, in all cases, whether the patient be poor or not, and that cases of contagious diseases may be either removed or properly isolated. He may also exercise some salutary influence over students' societies. The Regent is a University officer, and is not subject to the authority of any one Faculty. Whenever in the discharge of his duties he needs the support of any Faculty, he is expected to communicate with the Dean of that Faculty.

In 1889–90, namely, on the 26th of March, 1890, the Faculty of Harvard College sent to the President and Fellows certain proposed modifications of its regulations, intended to encourage the anticipation of College studies by students at the time of their admission, and to facilitate the attainment of the degree of Bachelor of Arts in less than four years.*

* The communication from the College Faculty was as follows: —

To the President and Fellows of Harvard College:

The Faculty of Harvard College received on Dec. 6, 1887, the following communication from the Academic Council: —

"*Voted*, that with a view to lower the average age at which Bachelors of Arts of Harvard College can enter the professional schools and the graduate department, the College Faculty be requested to consider the expediency of a reduction of the College course."

To the consideration of this difficult subject the Faculty has given much time, especially since Nov. 12, 1889, and now begs to lay before the President and Fellows the result of its deliberations.

The Faculty desires to modify its present regulations in accordance with the following propositions: —

1. That the requirements for the degree of Bachelor of Arts be expressed, under suitable regulations with regard to length of residence and distribution of work, in terms of courses of study satisfactorily accomplished.

This communication from the Faculty was received by the President and Fellows at their meeting of March 31st. Two meetings later the President and Fellows voted to approve the proposals of the Faculty, and transmitted the communication to the Board of Overseers with their own vote of approval. At the same meeting of the President and Fellows important amendments of certain statutes were adopted and transmitted to the Board of Overseers. The proposals of the Faculty were referred (April 16, 1890) in the Board of Overseers to a Committee which had been appointed nearly nine months before to consider "what changes in the Academic Department and its relations to the professional schools are desirable," but had not presented a report. The Board then acted on the proposed amendments to the statutes; and approved the proposal of the Faculty to advise parents and teachers that eighteen years is a suitable age for entering Harvard College. The Committee did not present a report on the other proposals of the Faculty until the following October, when they made a report which was adverse to the first and second proposals of the Faculty, and favorable to the third and fourth. After brief discussion the Overseers, on the 22nd of October, invited the Faculty to present in print the reasons for their proposals relating to the reduction of the College course, and also invited dissenting members of the Faculty to present their opinions in print at the same time. On the 6th of January, 1891, the Faculty transmitted to the Corporation and Board of Overseers a printed statement expressing the views of the majority of the Faculty

2. That the number of courses required for the degree be sixteen.

3. That when a student enters College there shall be placed to his credit towards satisfying the foregoing requirement of sixteen courses, (1) an advanced studies on which he has passed in his admission examination beyon the number required for admission, and (2) any other College studies which h has anticipated.

4. That a student may be recommended for the degree of Bachelor of Arts i the middle, as well as at the end, of the academic year.

In case the measures here proposed should be adopted, it is the purpose of th Faculty to encourage the anticipation of College studies by students at the tim of their admission, and to facilitate the attainment of the degree of Bachelor Arts in less than four years.

The Faculty further proposes to advise parents and teachers that eighte years is a suitable age for entering Harvard College.

26 March, 1890.

and another expressing the views of the minority. It appeared from these statements that the Faculty was then more evenly divided on this important subject than it had been in March, 1890. The vote whereby the proposals to facilitate the attainment of the degree of Bachelor of Arts in less than four years were originally adopted was a vote of 34 to 22. In January, 1891, three members of the Faculty, who had not taken part in the action of the Faculty in the preceding March, joined the minority, and three new members of the Faculty took the same course. The minority was thereby increased to 28 members. The Committee of the Board of Overseers subsequently prepared a supplementary report commenting upon the two statements received from the Faculty, and both their reports, together with the statements proceeding from the Faculty, were given to the public press. Finally, at their meeting of April 8th, 1891, the Board of Overseers refused its consent to the first, second, and fourth proposals of the College Faculty, and consented to the third with a slight modification necessitated by their rejection of the second proposal of the Faculty. During the year from April, 1890, to April, 1891, while the subject was in the hands of the Board of Overseers, the discussion was carried on through printed statements, in private conversation, and in the public press, very little time being given to it in any of the Academic Boards, including the Board of Overseers; but the final votes in that Board were passed by large majorities, and made it clear that measures on this subject must commend themselves to the judgment of a large majority of the teachers of the University, before they can be accepted by the Board of Overseers.

One significant fact was apparently agreed on by all parties to this prolonged discussion, namely, that any student of fair parts can get the degree of Bachelor of Arts at Harvard College in three years under the existing regulations without any unreasonable exertion, if he anticipates a subject or two at the admission examination, or makes good use of half of the summer vacation in each year.

The year under review afforded the first opportunity to observe the working of the new organization of the Department of Arts and Sciences under the statutes adopted in the year

1889–90. By those enactments the College, the Scientifi School, and the Graduate School came under the control of single Faculty, — the Faculty of Arts and Sciences, — and a Administrative Board was constituted for each one of these thre subdivisions. To these Administrative Boards many of the func tions of the old Academic Council and the old College Facult were committed, in the hope that the labors of the singl Faculty of Arts and Sciences would thus be diminished, and it attention devoted to questions of general policy rather than t administrative details. In practical operation during the yea 1890–91, this hope was partially realized.

As the number of students in the Department of Arts an Sciences increases, the amount of administrative work whic can be well done only by the teachers, increases also (see th report of the Dean, p. 42). The proper clerical work also in creases in proportion to the increase in the number of students but it is unnecessary and inexpedient that the teachers shoul do any work of that nature. Indeed, the Corporation i anxious to relieve the University teachers of all clerical or ad ministrative work which others can do as well as they It doe not seem possible, however, to relieve the teachers of that sor of administrative work which requires personal knowledge c the students or acquaintance with the subjects of study, wit the interests of the several departments, or with the relation between the departments. Fortunately, as the number of stu dents increases the number of teachers increases quite in pro portion; so that the administrative labors which must fall o the teachers can be divided among a larger and larger numbe of persons.

The attendance of members at Faculty meetings was no affected by the changes under consideration. In 1888–89 th average attendance was about forty members out of sixty-two in 1889–90 about forty members out of sixty; and in 1890–9 nearly forty-three members out of sixty-nine. The attendanc at all three Administrative Boards was excellent throughou the year. In general, the new organization worked smoothl and to the satisfaction of all concerned, the amount of wor accomplished being decidedly greater than under the forme organization.

The next interesting subject which engaged the attention of the Faculty was the organization of twelve standing committees of the Faculty, called Divisions. This subdivision of the large Faculty of Arts and Sciences into standing committees by subject of instruction recognizes, in the organization of the University, a tendency which has been distinctly seen for several years past — the tendency to associate for various administrative purposes the teachers of single or cognate subjects, whose common interest it is to develop their respective subjects to the highest possible degree, to seek better and better facilities for teaching them, and to attract as many competent students as possible to the study of them. Some of these Divisions of the Faculty by subject are already nearly as large as the whole College Faculty was thirty years ago. Thus, the Division of Modern Languages contains eighteen persons, and the Division of History and Political Science nine; and in each case there are associated with these members of the Faculty several instructors who are not members of the Faculty. The importance of this organization will be obvious when it is observed, that Harvard University has distinctly rejected, in its Department of Arts and Sciences, the policy of establishing distinct schools such as many other American universities have founded — as for example, a School of Finance, a School of Political Science, or a School of Philosophy. The University proposes to have but one comprehensive Faculty of Arts and Sciences, and to care for the interests of the separate departments of learning within this Faculty by means of this new organization of Divisions. The attention of the Overseers is especially invited to the discussion of this subject by the Dean of the Faculty of Arts and Sciences (pp. 43–47).

The Faculty gave attention, first through a large committee and then in its own body, to the arrangement of courses on methods of instruction, intended for teachers and persons who proposed to become teachers. The instruction which the Faculty finally decided to offer relates to the History of Teaching, the Theory and Art of Teaching, and the methods of elementary teaching in the following topics: Greek, Latin, English, German, French, History, Mathematics, Physics,

Chemistry, Zoölogy, Botany, Geology, and Geography. They proposed to provide full courses on the History and the Art of Teaching, and a short course of lectures on each of the special topics mentioned, and, in addition, a course of twelve lectures on topics in Psychology of interest to teachers. On the recommendation of the Faculty, the Corporation and Overseers appointed an Assistant Professor of the History and the Art of Teaching; and for the current year this Professor announced three systematic courses; first, on the History of Teaching and of Educational Theories, twice a week; second, on the Theory of Teaching, once a week; third, on the Art of Teaching, twice a week; each of the courses extending throughout the year. Professor James gives the lectures on topics in Psychology, and these lectures have been attended by several hundred teachers. Professor Greenough is giving a course on teaching Latin; but this course is only open to students of the University and not to the public. The detailed statement of courses on special topics will be found in the Appendix (pp. 209–213).

The Faculty, in common with most teachers in England and the United States, feel but slight interest or confidence in what is ordinarily called Pedagogy; but they believe that skilful teachers should be able to give some account of their methods for the benefit of those who are beginning to teach; or, in other words, that experienced teachers can advantageously convey to beginners some of the results of their experience. The Faculty believe, however, that this work to be profitable must be departmental; that the accomplished teacher of Latin must show how to teach Latin; the accomplished teacher of Chemistry how to teach Chemistry, and so forth; or, at least, that there must be separate teaching of the several methods applicable in the principal groups of subjects — Languages, History, Science, and Mathematics.

After much discussion in the full Board the Faculty of Arts and Sciences adopted a somewhat new arrangement of the College day, by which one hour was gained for lectures on each day of the week. Beginning with the current year lectures are to be given from nine A.M. to one P.M. and from half-past one to half-past four P.M. This arrangement gives seven hour

or lectures in the day instead of six, and results in making ourteen examination-groups instead of twelve. This change akes choice of study freer; because it makes it somewhat asier to avoid conflicts between one lecture and another, r between one examination and another. It is, therefore, n important improvement. It is found necessary, how-ver, to use the later hours of the afternoon and even the vening hours for those courses of instruction which have but ew students, and those chiefly advanced students. As the umber of subjects taught at the University increases, the umber of hours utilized for lectures in each day will doubtless ncrease, until the early morning hours and the late afternoon re all used. For the present it is possible for instructors to rrange with small classes hours of meeting which are not ncluded in the regular tabular view.

In the hope to facilitate the prompt and orderly beginning f work in all the regular courses at the opening of the College ear, the Faculty, in June, made several improvements in he processes of registration and of enrolment in the several ourses. The prompt determination of the studies chosen by ach student being a very important element in the orderly eginning of work, provision was made that all instructors ffering courses announced by the Faculty of Arts and Sciences for 1891–92 should be at specified lecture-rooms in or near the Yard from nine to one on the first day of the academic year, and that a representative of each department offering courses should be at a specified lecture-room from nine to one on the day before the term opened, for the purpose of advising students about the choice of their studies and their fitness for the particular courses which they desired to take. The Freshman Advisers and the members of the Committee on Special Students were also at the disposition of students on the day before the term opened, as in 1890. New aids for new-comers were provided, — such as a map of the vicinity of the University, a directory for important committees, departmental chairmen, and instructors, and lists of rooms which were to be let in the neighborhood of the College. Two or three voluntary organizations also offered their services to new-comers to help them in obtaining rooms, furniture, and board, and in general to

make them acquainted with the machinery of the University. In consequence of these various provisions made beforehand, the opening of the new year was prompt and orderly, although the number of new-comers to the Cambridge departments greatly exceeded that of any previous year.

During the year, the lower story of Harvard Hall, vacated by the Botanical Department, was rearranged and converted into a lecture-room and reading-room for the Classical Department and a reading-room for the Department of History. The libraries of the two departments were placed in these rooms, and were made accessible at all hours of the day and evening. The upper story of Dane Hall was divided into a large lecture-room and two laboratories, and assigned to the Professor of Psychology. The attic of Sever Hall, heretofore used for examinations, was assigned to Assistant Professor Moore, who thus obtained for the first time a room suitable for his drawing classes.

The Committee of Advisers for Freshmen was enlarged at the end of the year by the addition of three persons, making it eighteen in number, so that each adviser has a smaller number of students under his charge during the current year than in 1890–91, in spite of the fact that the Freshman class of the current year is a little larger. This Committee continues to render excellent service to the students and to the College as a whole. The function of the adviser is sometimes a laborious and anxious one; but it is also one which often yields a hearty satisfaction to the adviser as well as to the advised.

The report of the Dean of Harvard College shows (p. 71) that a little over six per cent of the classes of 1892, 1893, and 1894 left College for various reasons during the year 1890–91; but that this loss, and all losses caused by transfers, were met by new entries and by gains caused by transfers. Eighty-nine persons were newly admitted to these three classes in the year now under review, of whom sixty-two came from other colleges.

The class of Special Students continues to be a class of comparatively short residence. Thus, of 141 Special Students who were in attendance in October, 1890, 60 had left College

by the end of the year; 22 were transferred to some College class, and there returned to College in the class of Special Students (1 October, 1891) only 58 persons. That a large proportion of these students passed but a short time at the University is, however, no proof that they do not profit by their residence here. It is a main object of the statute which provides for the attendance of students not candidates for a degree, to open the University to young men of serious purpose who have but a short time to give to collegiate studies, or who desire to pursue for a year or two some special university study.

It appears from the Dean's report (p. 73) that hardly more than one ninth of the candidates for admission to the College for examination take the entire examination in either June or September. Nearly eight-ninths divide the examination either between two years or between June and September of a single year. The latter practice is on the increase. There are no striking changes in regard to the use of the permitted options at the admission examination. The percentage of candidates who offer advanced Greek declines slowly, and the percentage of candidates offering Trigonometry and Solid Geometry increases slowly. As the Dean points out, the increased load which every candidate must carry who abandons Greek among the subjects for admission, is a heavy one (p. 73). There was a striking increase in the number of candidates at the preliminary examination in June, 1891; but the number of failures at the examination was large. The practice of entering Harvard College from other colleges is on the increase (p. 77). In the summer of 1891, 73 graduates and undergraduates of other colleges were admitted to Harvard College; and in general these students who come from other colleges are earnest and vigorous young men. On account of the extraordinary variety in the standards and programmes of the American colleges and universities, the Committee which has charge of the admission of students from other colleges has a task of great difficulty, being obliged to examine minutely each candidate's record at the schools and colleges which he has attended.

The examinations for admission to Harvard College and the Scientific School are constantly extended to a larger and larger

number of places. In June, 1891, they were held at the fol lowing additional places: Cleveland, O., Minneapolis, Minn. Washington, D. C., Buffalo, N. Y., Denver, Col., Portland Ore., the Groton School, Mass., and Tokio, Japan. Th Faculty also decided to conduct admission examinations at an school or city where ten or more candidates will present them selves for the preliminary and final examinations, or for either o them, provided that the school or city be not within easy reac of one of the established places for admission examinations.

In order to secure regularity and security in the conduct o the admission examinations, Assistant Professor Morgan wa given charge of the assignment of proctors to duty at all ad mission examinations; the punctual preparation and dispatc of the question papers; the preparation of the returns for th Committee on Admission; the preservation of the records; an the transmission of the results to candidates. He was als charged with the supervision of the College records of unde graduates, particularly of dropped students, special student and persons admitted to advanced standing, or transferred fro the Scientific School or from the class of Special Students t the regular classes of the College.

In the course of the year the Faculty of Arts and Scienc and the Administrative Board of Harvard College arrived at perfect understanding with regard to the delegation of powe from the Faculty to the Board, and no serious difficulty occurr in giving just effect to the statutes adopted in May, 1890.

It is an interesting question how far the restriction of schola ships to needy students affects the desire of the students wh are not needy for high standing as scholars on the Colle records. Some persons have supposed that almost all the hi scholars in a college class were recipients of scholarships other aids. The following tables shed some light on this inte esting question: —

	1886.	1887.	1888.	1889.	1890.	To fo ye
Total graduated *summâ* or *magna cum laude*	54	55	33	35	59	
Of these, were not aided at all	21	23	13	15	26	
Were aided for four years	14	12	15	13	8	
" " " three "	7	10	2	4	12	
" " " two "	8	6	2	2	11	
" " " one "	4	4	1	1	2	

Of those aided,	1886.	1887.	1888.	1889.	1890.	Totals for 5 years
there received $100 or less during the 4 years	2	0	0	1	0	3
" " 200 and less than $300 " " " "	0	1	0	0	0	1
" " 300 " " " 400 " " " "	3	3	1	0	1	8
" " 400 " " " 500 " " " "	5	1	1	1	7	15
" " 500 " " " 600 " " " "	4	2	1	0	1	8
" " 600 " " " 700 " " " "	1	4	0	0	8	13
" " 700 " " " 800 " " " "	5	5	2	3	6	21
" " 800 " " " 900 " " " "	1	5	1	1	3	11
" " 900 " " " 1000 " " " "	4	2	0	3	1	10
" " 1000 " " " 1100 " " " "	4	1	5	5	1	16
" " 1100 " " " 1200 " " " "	2	2	2	3	2	11
" " 1200 " " " 1300 " " " "	1	1	5	1	3	11
" " 1300 " " " 1400 " " " "	1	5	1	0	0	7
" " 1400 " " " 1500 " " " "	0	0	0	1	0	1
" " 1500 " " " 1600 " " " "	0	0	1	1	0	2

It appears from the first of these tables that nearly three sevenths of these high scholars in the five classes named received no aid; but that the proportion of unaided scholars varied considerably in the five classes, being highest in the class of 1890 and lowest in the class of 1888. If the inquiry had been confined to those students who graduated *summa cum laude*, the proportion of the students aided would have been larger. Of the high scholars aided in those five classes, one half received less than $800 in the four years, and only three received more than $1400 in four years. The amount of aid given is, therefore, far from being full support, it being remembered that every student who receives a scholarship has to pay from it the tuition fee of $150 a year.

The growth of the Lawrence Scientific School (p. 84) during the past six years has been remarkable. In 1885–86 there were 14 students in the School; during the year 1890–91 there were 88; and at the opening of the current year there were 118. Two new instructors were appointed in 1890–91 — one in Electrical Engineering and another in Astronomy — and a new course in Anatomy, Physiology, and Physical Training was planned, which is to be added in 1892–93 to the courses already given in the School.

There are several causes of the revival of the Scientific School. The first was the energy and the good judgment of

the Dean; the second the more complete union of the Scienti
School with the College; the third the establishment of clos
connections between the School and the public high school
and the fourth the relative cheapness of board and lodging
Cambridge as compared with the cost of these necessaries
other cities in which schools of science are carried on. A larg
proportion of the students of the Scientific School than of C
lege students comes from outside Massachusetts.

The report of the Dean of the Graduate School (p. 8
calls attention to the fact that there are now available for Gr
uate students twenty-one fellowships and forty-seven schol
ships, which together yield a total annual income of $22,35
A little more than one third of all the Graduate students of t
current year received aid in the form of a fellowship or schol
ship; but the number of applicants for these aids was nea
three times the number of places to be filled. The report
the Dean (pp. 90–93) shows the distribution of the applica
and appointees by subjects of study, by their previous relat
to this University, and by the degrees which they had alrea
earned.

The attention of the Board of Overseers is invited to
Dean's discussion of the conditions on which the degree
Master of Arts is given, and to his suggestion of a change
those conditions.

The Divinity School had in the year 1890–91 the larg
number of students ever enrolled in it, and more than one th
of the students were graduates of other theological seminar

The increase in the number of volumes in its library was 16
being between seven and eight per cent. The progress of
library catalogue was satisfactory, and it may now be expec
that the catalogue will be finished in from three to four ye

The endowment of the School was increased by the rec
of the bequest of William B. Spooner to the amount of $10,0
and the School had a surplus for the year of $1410.45.

Some of the courses given in the School are attended b
considerable number of College students, — notably the cou
on Church History, Comparative Religion, the Ethics of So

Questions, the Philosophy of Religion, Hebrew, and the History of Israel and of the Religion of Israel. On the other hand, the Divinity students attend many College courses, particularly those on Languages and Philosophy. The larger part of the courses in the Divinity School have been adopted by the Faculty of Arts and Sciences for the degree of Bachelor of Arts.

Nothing is now wanting to the establishment of the Divinity School on a genuine University basis, except the raising of its tuition-fee to the level of the fee in all other Cambridge departments of the University, and the reduction of the amount of beneficiary aid given to each applicant. The Divinity School is the only department of the University which gives to every acceptable applicant for aid money enough to meet the small tuition-fee — $50 — and to pay for board, lodging, fuel, light and washing. So long as this is the case, the School will not command the respect which the other professional schools of the University command, and it will not contend, as it might, against the common impression that members of the clerical profession are semi-pauperized, — in their early years by the habit of accepting complete support during the long period of education, and in their later by half-fares, free admissions, gratuitous services from physicians, special discounts from tradesmen, and spasmodic gifts from their churches instead of punctual payment. The great need of the clerical profession in the modern world is to get placed on the same self-respecting footing as regards education and compensation, as the medical profession or the profession of teaching. It should be said on the other hand that the Harvard Divinity School is supposed to be the only theological school in the United States at which any tuition-fee at all is exacted.

The Law School has had an extraordinary growth during the past five years, a growth which is fully described in the subjoined report of the Dean (pp. 104–117). This growth is of course very welcome; but it causes two serious mechanical difficulties in the administration of the School. Although Austin Hall is but eight years old, it is already too small. It could be conveniently enlarged by extending the main

body of the building to the north, so as to gain anothe large lecture-room in the lower story, and a reading-roo nearly as large as the present reading-room in the secon story. This enlargement, however, cannot be made with an present resources of the School. The second difficulty is th consumption of valuable books, due simply to the incessant us of them by the numerous students. It is not a large proportio of the books of the library which are being destroyed; but is the books most referred to by the teachers, which are pr sumably the most valuable books for present use in teachin These are the ones which are being destroyed, in spite of considerable provision of duplicates. There are two means meeting this difficulty. The first is by providing collections cases, prepared by the professors, and published in the ordina manner. The other is by reprinting those portions of volum of reports and other books which are destroyed by attritio It is necessary to keep the library good at whatever cost; f it is the principal means of instruction. It must be confess that the standard of the School is high in regard to the comfo and convenience of its students and their free access to book but these are characteristic merits of the School, and must maintained in spite of the rapid increase in the number students.

The Faculty has already adopted two measures which w probably tend to diminish, temporarily at least, the number students. The first of these measures is the regulation that student, whether a candidate for a degree or a special studer who fails to pass an examination in at least three subject either at the regular examinations held at the end of his fi year in the School, or at the examinations held in the followi September, will be allowed, unless by vote of the Faculty, continue in the School. It will be perceived that this regulati applies to regular students as well as to special. Secondly, the beginning of the academic year 1893–94, and thereafte all persons, who shall not be entitled to be admitted to t School without examination as candidates for the degree, w be required as a condition of being admitted to the School pass satisfactory examinations in Latin, French (or some oth modern language) and Blackstone's Commentaries, and t

examination will apply to special students as well as to candidates for a degree. The existing examination for a degree demands only Latin, or some other foreign language, with Blackstone's Commentaries; and special students are not subject to any examination.

The most important event at the Medical School during the year under review was the decision of the Faculty to establish a single four-years' graded course of instruction, to go into effect in September, 1892. For thirteen years past the Faculty has been offering an optional four-years' course as well as a required three-years' course, and during this experience they have developed systematic clinical instruction to an amount which will more than fill a required course of four years. The present elective element in the last year of the course is therefore not likely to be destroyed. As the Dean of the School points out (p. 117), the Faculty is well aware that the number of students may be diminished by this requirement of an additional year to be spent in medical study; but the improvement of medical education is with them so great an object that they are ready to risk a reduction in the income of the School.

The establishment of three fellowships for encouraging original research in medicine, through the generosity of Mr. William Story Bullard, is another interesting event in the history of the School, particularly as the three fellowships bear the names of three eminent practitioners of medicine, who are thus appropriately commemorated in the community which they served long and faithfully.

The Summer courses and the graduate courses maintained by the Medical School are increasing steadily in the number of courses taken, in the number of students, and in the receipts from fees. This growth is exhibited in table V. appended to the Dean's report (p. 128).

The Dental School had an unusually large first-year class in the year under review. It was surmised that this might be due to the fact that in 1891 the admission examination was to be increased and a three-years' graded course put into

operation; but in spite of these additional requirements th
first-year class was again unusually large in September, 1891
to the great satisfaction of the Faculty and of all friends of th
School. Indeed, the number of students during the curren
year is the largest the School has ever had.

The endowment of the School was increased by a gift o
$7000 from an anonymous benefactor who had already give
$6000.

It is much to be wished that the School might have a wel
arranged and spacious building of its own in a locality no
remote from the Medical School. The present situation
obscure and inconvenient, and the building is not well adapte
for the purposes of a dental infirmary; although it has been
very welcome shelter for the School during the last eight year

Since the School is now out of debt and has an endowmen
of $15,205.85, beside a favorable balance of $3817.12, it ha
been possible to increase a little the number of salaries, or
other words, the expenditure for instruction; but the salari
paid by the School are still very inadequate.

The number of students at the Bussey Institution during th
year was unusually large, although still small (see the Dean
report, pp. 132, 133).

Its receipts exceeded its expenditures for the year by $2918.7
in spite of the fact that the income of the Bussey trust w
smaller than in the preceding year. The Bussey Institutio
has now a disposable balance of $11,825.39, the result of su
pluses for several successive years.

As the Dean points out, the School is prepared to receive
pupils a certain number of young men who pay for their boa
at the Farm in work at the stables and in the fields. T
founder of the Bussey Institution expressly directed that tuitio
fees should be freely remitted to promising young men of na
row means. To obtain manure to keep the fields in tolerab
condition, animals are taken to board at the Farm, and t
surplus wood on the Farm and the outlying estates which belo
to the Institution is cut up and sold. Students can perform
part of the labor which these operations involve. They a
also able to aid the Horticultural Department in carrying

the hot-houses, and in raising plants for exhibition and for the supply of flowers out of season to the classes in Botany at Cambridge.

Provision was made during the year 1890–91 for a considerable increase of instruction at the Veterinary School. The subjects of Cattle Practice and of Warranty and Evidence were added to the course of study, and arrangements were made to increase considerably in 1891–92 the instruction in clinical medicine. There are now seven Veterinarians attached to the School, in addition to the teachers of the Medical School who give instruction to students of Veterinary Medicine.

The Dean points out in his report (p. 137) that the three-years' graded course, which was originally adopted in this School, has been since established in three other American universities, and will in no long time suppress the two-years' course which has heretofore been common in private veterinary schools, — a year meaning in this case only four or five months.

There is no doubt that the Veterinary Hospital and Forge can be self-supporting, if gratuitous advice and treatment for sick and wounded animals be closely limited (see p. 137); but from the point of view of the Veterinary School this limitation is of course undesirable.

The Veterinary establishment as a whole greatly needs endowment for two purposes: First, to obtain a much larger hospital, and secondly, to provide more salaries and larger salaries for instructors, and particularly for clinical instructors. This object ought to be an attractive one for persons who are fond of animals, or who perceive how closely the health and safety of human beings is bound up with the welfare of the domestic animals.

An important event in the history of the Library during the year under review was the completion of an index to the subject-catalogue, which is the most complete list of topics ever printed, including about fifteen thousand topics without counting the seven thousand cross references. While preparing this index, Assistant Librarian W. C. Lane, who has worked on the catalogue since 1882 and on the index since 1886, has greatly improved the catalogue itself.

The laboratory and class-room libraries, which are kept
various rooms outside of Gore Hall, continue to increase
extent and number. There are now twenty-one such colle
tions, containing in all 8452 volumes (p. 141). These bool
are more exposed to loss and damage than the books in Go
Hall; but, on the other hand, they are more convenient f
the use of the students in the several departments. Th
establishment of these detached libraries has caused son
diminution in the use of books by students at Gore Hall; b
has undoubtedly increased the total use of books by the st
dents of the University. The Sunday use of the Library
extraordinarily steady, having hardly changed at all for fi
years.

The total expenditure for books during the year w
$13,905.33; for the bulletins and other printing, $1926.9
for binding, $1578.71; for salaries, wages, and running e
penses, $24,493.88. This result is not exceptional, but norma
and shows that in carrying on a large library for the bene
of the officers and students of a university the annual cost
ordering, cataloguing, shelving, and delivering books, and
general administration will always greatly exceed the annu
expenditure for books, binding, and bibliographical publicatio

The Librarian urges, none too strongly, the great need
increasing the capacity of Gore Hall without delay, and
providing an adequate reading-room in connection therewit
No important increase of the reading-room accommodatio
has been made since 1876; but within that time the numb
of students in the Cambridge departments of the Universi
has nearly doubled. The Librarian states that within tw
years the entire available shelving of the Library will be fill
to repletion. It will certainly take at least two years to pl
and build a new reading-room, and thereafter to convert o
Gore Hall into a book-stack. A committee of undergraduat
procured in 1890–91 subscriptions for a new reading-room
the amount of $22,133.77, and on these subscriptions money
the amount of $12,448.77 has been paid into the hands of M
Moses Williams, who acts as Treasurer. The Gore Annui
Fund in the hands of the Corporation, which could be appropr
ately applied to the alterations in old Gore Hall, now amoun

to $24,961.65; but it is still chargeable with an annuity of $600. The total cost of the constructions urgently needed cannot be safely estimated at less than $150,000.

The acquisitions to the Herbarium during the year were large, the total number of specimens received being about 13,000, and the number of specimens mounted and distributed 10,995.

In consequence of injury to the health of one of the botanists working in the Herbarium, apparently due to arsenical poisoning, the method of poisoning the plants with arsenic acid, which has been used for several years past, has been abandoned, and no other method has yet been adopted.

The employment at the Herbarium of Professor Barnes, of the University of Wisconsin, and of Dr. B. L. Robinson, increased considerably the expenditure of the Herbarium for salaries; so that the total expenditure of the Herbarium was $6329.84 in 1890–91, against $3048.60 in 1889–90, and $4493.23 in 1888–89. This additional expenditure is made possible by the gift, alluded to in last year's report, of $3500 a year for five years. This gift was made in the hope that it would ensure the completion of the Synoptical Flora of Professor Asa Gray; but thus far the progress of that great undertaking has been slow. Dr. Gray's copyrights continue to be a valuable resource to the Herbarium; and the preparation of a new edition of his Field, Forest, and Garden Botany was one of the labors of Professor Barnes during the year under review.

The report of the Director of the Botanic Garden (p. 156) will be found unusually interesting. The Garden itself was, as usual, of great service to the classes in Botany and to numerous visitors; but the two events of the year which most deserve attention are the transfer of all the collections and laboratories in Botany, except the Gray Herbarium, to quarters in the University Museum, and the measures taken to create there an interesting and instructive collection. The combined departments of Phanerogamic and Cryptogamic Botany are now liberally provided with lecture-rooms and laboratories, with storage and exhibition rooms. For the exhibition rooms

a great deal of material has already been provided; but mone is still needed for the construction of proper cases in which t arrange in security these abundant materials. A portion c the Ware collection of glass models of plants is already o exhibition, and proves to be one of the most beautiful an attractive exhibitions which the University Museum contains The journey which Dr. Goodale made round the world durin the year under review gave him an opportunity of examinin botanical gardens and collections in the tropics and Australasia and of arranging for the acquisition by purchase or exchang of many specimens representing the tropics and the southern hemisphere. These specimens will supplement the collection previously acquired from the northern hemisphere. Th Curator of the Museum of Comparative Zoölogy has tran ferred to the botanical selection of the University Museu large collections of fossil plants.

The development of the botanical establishment of the Un versity during the last ten years may fairly be called extraord nary. It has acquired a large fire-proof Museum, to conta not only its collections, but its lecture-rooms and laboratories has added greatly to its collections and its library; and, at th same time, has obtained larger permanent funds for the suppo of the combined establishment. Every branch of the wor has been developed and enriched. For all this material pr gress the University is chiefly indebted to Professor George L Goodale, Director of the Botanic Garden.

Good progress was made by the Park Commissioners of th city of Boston in building the roads in the Arboretum in ac cordance with the plans of Frederick Law Olmsted. Withi twelve months the driveways in the Arboretum will probabl be finished. The construction of these roads has been delaye long beyond expectation, but the work has been done in thorough and durable manner, and the result of the combine undertakings of the city and the University will be beautifu dignified, and instructive twenty years hence.

Instruction was given in the Arboretum in May last by th appointment of a lecturer on Arboriculture, who gave lectur in the open air on the aspects of the various plants which ar now growing in the Arboretum. In time to come this instru

tion will doubtless be considerably developed, as the plantations of the Arboretum become more extensive, and the trees and plants attain their natural size.

An important gift was made to the Arboretum last Summer by Mr. H. Hollis Hunnewell, — that of a fire-proof building to contain the herbarium and library of the Arboretum. The construction of this building has been already begun.

In the Chemical Laboratory the elementary courses were resorted to by an unusually large number of students, and there was an increased number of advanced students, who taxed the professors to the utmost. The charge of students capable of carrying on original investigations is very exhausting to the teachers who are obliged to plan and direct their investigations. Such labors are much more arduous than elementary teaching, and yet they are performed for a few students, each of whom is carrying on a distinct undertaking. The growth of the Graduate School brings more and more such work upon the principal professors in the various scientific establishments, and the chemical department had its full share of such work in 1890–91.

During the year the mineral collection was arranged in its new quarters at the University Museum, and a few weeks before Commencement the collection was opened to the public. The removal of these collections from Boylston Hall vacated two large rooms. The room in the second story was fitted up during vacation as a lecture-room. It seats nearly five hundred persons, is well lighted and ventilated, and is a great acquisition for the department. The corresponding room on the third floor is to be fitted up for an organic laboratory. It is a great satisfaction that the valuable mineralogical collection of the University is now placed in a fire-proof structure, and in ample rooms in which it can be suitably displayed. The Director has for several years given much thought and work to the accomplishment of this object, and now sees his wishes fulfilled in the completest and happiest way. The resulting increase of accommodation in Boylston Hall is no slight incidental advantage.

The Director of the Physical Laboratory reports (p. 169 a change of policy at the Laboratory in regard to the purchas of physical apparatus. The attention of the professors an assistants has been directed to cheapening physical apparatu while increasing its efficiency. Their efforts have bee crowned with success, and other institutions of learning ar beginning to share the benefits which the Jefferson Physic Laboratory has procured (see p. 170). Whatever promotes th laboratory method of studying physics in schools and colleges an important contribution to the rational teaching of science.

Investigations in physics were steadily prosecuted by th members of the department.

The Summer Schools in physics were well attended b teachers and other students, and the higher of the two cours was extended to six weeks. Out of 34 students in the tw courses 26 were teachers.

Subscriptions were paid in to the amount of $7720.00 towar the Joseph Lovering Fund for Physical Research.

The report of the Director of the Observatory (pp. 172–18 exhibits a great amount of work done, both in observation a publication. The collection of photographic plates increas rapidly, and now contains nearly 30,000 plates, representing t entire sky from the North to the South pole, together with collection of the spectra of the stars, and of spectra on a larg scale of the bright stars visible in Cambridge These pho graphs show the condition of the sky for six years past, a form a unique collection of permanent value. A safe buildi in which to deposit this collection is one of the most urg needs of the University. Subscriptions to the amount $7200 have been obtained, and it is hoped that before t coming Spring the subscription will be completed; so that t building can then be erected. When ordinary astronomi observations have been published, and the volumes have b distributed to widely scattered libraries, their value has b secured to posterity; but photographic plates of the heav have a permanent value for purposes of comparison, which be secured only by preserving the actual plates in a safe wh will protect them against fire and dampness.

The expedition to Peru, under the charge of Professor William H. Pickering, has proved to be much more expensive than was expected, and the principal of the Boyden Fund has been drawn upon to meet the expenditures. When the objects of the expedition have been accomplished, it will be possible to allow the Boyden Fund to accumulate for a time, until the present drafts upon the principal are made good.

During the year 1890–91 the teachers of Geology, Palaeontology, Physical Geography, and Petrography came into the possession of spacious rooms provided for them in the Geological section of the Museum, — the section which connects the Northwestern corner block with the Museums of Botany and Mineralogy in the Oxford-street front. At the same time the accommodations of the Zoölogical Department were greatly improved. All the natural history departments of the University are now amply provided with lecture-rooms and laboratories at the University Museum and the Museum of Comparative Zoölogy. Some of the rooms, as, for example, the Geographical Museum, are not yet furnished and equipped; but the rooms needed for the various classes in those subjects, whether lecture-rooms or laboratories, are all in use, and together afford excellent accommodations for both teachers and students.

The Zoölogical Department gives the best evidence of its strength in the number of contributions which its teachers and students make to the publications of the Museum of Comparative Zoölogy (p. 187). The library of this Museum grows rapidly, and is already a collection of great value. The publications of the Museum are fully maintained in number, variety, and importance. There are, however, three unwelcome facts about the Museum which ought to be made known to the promoters of the University and of the sciences which the Museum so admirably illustrates. In the first place, several exhibition-rooms of great interest and importance are still unfinished, and cannot be completed without the expenditure of a considerable sum of money for cases and material. An aquarium and a live-stock room for the Zoölogical Department also remain to be provided. For these purposes the sum of $27,000 is needed,

to be expended in the course of two or three years. Secondl in order that the collections of the Museum should be open to specialists for purposes of study and investigation und suitable conditions, more assistance is required in the Museu (p. 186), and to provide this assistance steadily the income a permanent fund of $24,000 is needed. Thirdly, the Museu is in debt to the University treasury to the amount of $24,113.7 which debt was incurred in building the Geological section the Museum, and in acquiring certain fossil collections whi had to be bought when they were in the market. If this de is repaid by annual instalments from the income of Museu funds, the Museum will be crippled in its operations for five six years. It is very desirable that the Museum should freed from this burden. The moderate sum of $75,000 wou meet all three of the needs above described.

The Curator of the Museum has in past years given gr sums to the Museum from his own private fortune; but he n has other plans for the advancement of science which preve him from continuing to develop and support the Museum. T community owes him and the Founder of the Museum so mu for what has already been accomplished, that it seems unreasonable to expect that the moderate sums which ueeded to put the Museum firmly on its feet will before lo be provided.

The Director of the Peabody Museum of American Archa ology and Ethnology makes an interesting report (p. 188), which he mentions a few incidents in the early history of t Museum, and sketches its rapid progress during the seventee years that he has had charge of the collections.

The Museum received during the year the gift of $10,0 from Mr. Roger Wolcott, acting under the will of his fath Mr. Joshua Huntington Wolcott. The excellent conditions this gift are stated in the Curator's report (pp. 190–191).

The increase of gifts to the Museum is very encouraging the Trustees. It shows that the resources of the Museum not to be limited to the income of the funds provided by t founder, Mr. George Peabody, but are to be increased a multiplied as the educated public comes to realize the immens

of the field in which the Museum does its work, and the inadequacy of its original endowment.

Professor Putnam has been appointed Chief of the Department of Archaeology and Ethnology at the World's Columbian Exposition, and in this capacity is directing various explorations and researches which cannot but be fruitful for the Museum as well as for the Columbian Exposition. An important expedition to Honduras has been organized by the Museum, and the money necessary for one year's work has been provided (pp. 194–195).

It will be noticed in the account which the Curator gives of the expenses of the year (p. 198), that the income of the Peabody Fund is less than half of the total expenditures of the year.

The Semitic Museum, which originated in the gift of $10,000 by Mr. Jacob H. Schiff, was formally opened to the public on the 13th of May, 1891, in temporary quarters within the Peabody Museum, where it attracts many visitors. Up to the close of the year only about half of Mr. Schiff's gift was expended; but orders already given will probably exhaust the remainder of the original sum. Beside the objects purchased, many others of great interest have been given to the Museum. The chief groups of objects are casts, mortuary stones, seals, tablets, manuscripts, and photographs. The casts are reproductions of Babylonian, Hebrew, Phoenician, Moabite, Arabic, Hittite, and Persian monuments. The manuscripts are Hebrew, Syriac, and Arabic. The photographs illustrate Semitic architecture, scenery, and manners and customs. A beginning has also been made of a collection of Semitic coins.

By the end of the current year the whole space which can be allotted to this collection in the Peabody Museum will be quite filled, and the question of permanent accommodations for the collection will begin to be urgent. At present the lecture-rooms and library of the Semitic Department are far removed from this collection. It would of course be much more advantageous if all the resources of the department were combined in one building.

The development of Summer courses of instruction has be somewhat rapid during the past three years. The followi table shows the total amount of fees paid by students in t Summer courses in each summer since the year 1886, clusive : —

886.	1887.	1888.	1889.	1890.	1891.
$1720.	$4060.	$4165.	$5191.	$6345.	$7873.50.

In the summer of 1891 the following courses were given Cambridge : In Chemistry, four courses ; in Botany, one ; Geology, three ; in Physics, two ; in Field Engineering, tw in English, one ; in German, two ; in French, two ; in Ang Saxon, one ; in Physical Training, one. For the summer 1892 several new courses are announced in addition to th given in the summer of 1891. Most of these courses run six weeks, occupying about the first half of the long vacatio but the different needs of the different departments produ some variations from this type.

In the summer of 1889, 188 persons attended the Summ courses ; in the summer of 1890, 279 ; in the summer 1891, 287.

The attention of the Faculty of Arts and Sciences w directed during the year under review to the expansion of t Summer courses, and their proved usefulness was fully rec nized. After discussion and deliberation, the Faculty decid to admit to its list of courses that may be counted for t Bachelor's degree eight Summer courses — one in Germa two in Engineering, one in Physics, one in Botany, and t in Geology, together with one in geological field-work, all which courses are carried on under the supervision of a reg larly appointed officer of instruction, and with proper tests the industry and proficiency of the students. It is obvio that these Summer courses have great advantage for s dents of the natural sciences and engineering ; for th give opportunity for field-work at the best season of t year, and with freedom to choose the best place for the ki of field-work which is, in the opinion of the instructor, m desirable.

Another interesting observation has been made in connecti with the Summer courses, — namely, that six weeks of assiduo

application to one subject for eight hours a day enables an earnest student to make an extraordinary progress in a new language or a new science. In those departments in which there are several graded courses, as for example in Chemistry, school-teachers who have no time at their disposal for study except during the Summer vacation, have been able to make very substantial attainments in a single science, by returning year after year, and taking the successive Summer courses in that science. A person in vigorous health, who can devote six weeks in each of four successive Summers to a single general topic, can make very nearly, if not quite, as much progress in that subject as in one solid year's residence at the University during term-time only.

Within the past five years there has been a remarkable increase in the number of students attending the University. Between October 1st, 1887, and October 1st, 1891, the increase was 965 students; whereas in the ten years from 1877–78 to 1887–88 the increase was only 458, and in the ten years from 1867–68 to 1877–78 the increase was 335. At the beginning of the year 1891–92 the increase over the number of the preceding year was 387. The report of the Dean of Harvard College (p. 70) gives the details of this increase so far as the College proper is concerned; but the gain of the past five years has been distributed through all the departments of the University, although it has been most striking in the Scientific School, the Graduate School, and the Law School (see pp. 84, 86, 112). It is hard to account for this sudden development. There have been no changes in the requirements for admission which have made it easier to enter the University in any department, and no changes of policy which have made it easier to procure any of the ordinary degrees. There has been nothing in the conditions of business throughout the country to lead one to suppose that families were better able than usual to send their sons to College. In the College proper and in the Graduate School there has been an increase in the amount of beneficiary money and other similar aids for poor students; but in the Scientific School, the Law School, and the Medical School — all of which have grown remarkably — the aids for

poor students are insignificant. Within two years the pric
board in Cambridge has been considerably reduced; so th
student who is forced to economize can now live in Cambri
as cheaply as at most of the other colleges of the country;
this fact alone cannot account for the sudden and great incr
in the number of students. The increase has occurred sin
taneously with the introduction and maintenance of the
method of carrying on the religious services of the College
ministers of different denominations and with completely vol
tary attendance on the part of the students; but it would
difficult to maintain that this single change of policy co
produce such an effect; for the Scientific School and the p
fessional schools have always been completely independen
the College Chapel and of the regulations affecting the atte
ance at religious exercises of the students of the College pro
On the whole, the most probable view is that the unequa
resources of the University have become better known to
educated public throughout the country than they form
were, and that the general policy of the University, both
the College and in the professional schools, has appro
itself to teachers, parents, and professional men, and
to self-directing young men who are seeking a thoro
education.

A great increase in the gross annual expenditures of
University has taken place simultaneously with the increas
the number of students. Thus, in 1888–89 the gross ann
expenditures, including the cost of new buildings, rose
$904,943.56. In the next year it was almost a million dol
($995,437.58), and in the year 1890–91 — the year un
review — it was $884,538.83. In the whole history of
University the annual expenditures have never risen ab
$700,000 but once before, and they have risen above $600,
only six times before 1888–89. A large part of this incre
of annual expenditure is due to gifts to be immediately sp
for buildings and other equipment; but another large p
is met by the increase of tuition fees. Every student
Harvard University pays a tuition fee. The increase in
number of students between October 1st, 1889, and Octo
1st, 1891 (579), therefore, increased the annual receipts of

University by about $90,000. It will be perceived that the increase of gross annual expenditure is proportionally much larger than the increase in the number of students. There are three reasons for this fact: In the first place, the plant of the University has been much added to and improved within the past five years. Secondly, the cost of the scientific establishments — like the great collections and laboratories — and the cost of the libraries bear no relation to the number of students using them. And thirdly, all the advanced instruction of the University is very costly in proportion to the number of students who receive it. The American public must enlarge its ideas of the cost of supporting a university. It may reasonably be inferred from the experience of Harvard University that after all the grounds, buildings, and collections of a university have been provided, an income of a million dollars a year will still leave the university with many pressing wants, many gaps in its instruction, and many fields of research untouched for lack of means.

In the process of building up a great University in Cambridge the Corporation is forced to consider, from time to time, the cost of board and lodging for students. The experience of the past seventeen years has demonstrated that a large number of students can be furnished with very ample board in Memorial Hall at a weekly price of about $4. The price of board at Memorial Hall during the year 1890–91 was $4.04 for the first third of the year; $4. for the second third; and $4.10 for the last third. The business management of the Dining Hall Association is excellent, the accounts being so kept that suitable provision is made from year to year for renewing all the perishable parts of the equipment, such as linen, crockery, cooking utensils and furniture. These renewals are somewhat costly. Including repairs and improvements, the expenditures in the Dining Hall during the last summer vacation were nearly $4000. It is believed that the stock and equipment of the Association are fully kept good.

For several years past the waiting-list at Memorial Hall has been unreasonably long, showing that many more students sought admission to the Hall than could be accommodated on

the club-table plan with a permanent seat for each per
Near the close of the year 1890–91 the Directors of the Ass
ation resolved to try a new experiment. Reserving for cl
thirty-eight tables with a seating capacity of 514 persons, t
decided that seventeen tables, with a seating capacity of
persons, should be carried on like hotel or restaurant tab
without providing a fixed seat for each person. Accordir
at the opening of the present year 516 persons were admi
to club-tables and 460 to the general or hotel tables. By
20th of December 485 persons had been admitted to the gen
tables. By this measure the waiting-list was much reduc
On the 1st of October it was 50; on the 20th of Decembe
was 36. About 250 additional students were thus admitted
the benefits of the Hall. During the first third of the cur
year the new method has worked very smoothly and seem
be generally acceptable. If the number of students in C
bridge should continue to increase, as it has increased du
the last five years, the Association may either have fewer c
tables and more general tables, or increase the number of
sons assigned to each club-table.

The Foxcroft Club, which was first organized in 1889,
carried on successfully during the year 1890–91 with a mem
ship of about 200. This Club has proved that students ca
provided with satisfactory meals, à la carte, at an average cos
about $0.40 a day. During the current year the dining-ro
of this Club have been enlarged and the number of mem
increased, and it now provides a large number of students
cheaper board than has been obtainable in Cambridge for th
years past (see the Club's bill of fare, p. 220).

So far as board for students is concerned, Cambridge is
a very advantageous place. It is not the same with regar
lodgings. The total number of students who can be prov
with rooms in College buildings is 1023, while there are at
2000 students living in Cambridge; that is, only about hal
the students resident in Cambridge can be accommodated in
lege buildings. The rest must seek rooms in private dormito
or in private houses. The consequence is that the price
furnished rooms in Cambridge within a short distance of
College yard are undesirably high. The Corporation des

very much to be enabled to offer students a large number of plain rooms, simply furnished, at a price not much exceeding $50 a year, including the daily care of the rooms.

The common opinion that Harvard University is mainly an institution for the well-to-do is far from being correct. From some statistics concerning the College Class of 1891, collected by its Secretary, Mr. H. A. Davis, it appears that nearly eleven per cent of those who replied to his inquiries about their annual expenditure — excluding those who boarded at home — spent less than $500 a year. From the same source we learn that only eleven per cent of that class were sons of Harvard graduates, and only fifteen per cent were sons of graduates of other colleges. Nearly three quarters of the class were therefore sons of persons who did not themselves receive a college education. In the President's Report for the year 1877–78 it was mentioned that only one eighth of the undergraduates on the rolls of the College in June, 1878, were sons of graduates of Harvard. Mr. Davis's statistics point to the continuance of this condition of things. All the American colleges are mainly recruited from children of parents who were themselves not highly educated. Harvard University depends for its growth on the steady supply of entirely fresh material, not drawn to it by family considerations or inherited associations; but attracted by its prestige, resources, and privileges. The unrivalled resources of the University are, however, unknown to most Americans, educated or uneducated. Many persons suppose that one college is about as good as another, or one university very much like another, and that it does not make much difference to which of a hundred different institutions a young man may resort. The state universities have no tuition-fees, and many of the small colleges are situated in villages where board and lodging are cheap. On this account cheap board and cheap rooms in Cambridge are a necessary means for building up here a great, popular institution.

The Treasurer's Annual Statement will be found unusually interesting. The proper income of the year, apart from gifts, was larger than ever before, and every department of the

University was pecuniarily prosperous, though all had unsa
fied desires. The special interest of the Statement, howev
lies in its description of important changes made in the accou
as of July 31, 1891.

Among the "general investments," in which all departme
of the University have an interest, have stood for many ye
two items of an exceptional character, one an item dating fr
1790 and called "Houses and Lands in Cambridge," the ot
an item dating from 1867 and called "Unimproved Lands
Cambridge." The first has resulted from a long series of de
and credits relating to real estate in Cambridge, and now sta
at $353,585.06; the second has resulted from successive p
chases of unimproved lands in Cambridge for University u
immediate or prospective. For twenty years the Corpora
has seen clearly that these two accounts would in time bec
embarrassing for two reasons — first, because the security
liable to waste by the degeneration of buildings and the app
priation of parcels of the land to unproductive uses; and,
ondly, because the different Schools and Establishments, wh
funds are represented by the "general investments," will
have, as time goes on, identical interests in the uses of land
Cambridge.

To extinguish the item called "Unimproved Lands in C
bridge," the Corporation has for several years past credite
that account net gains from sales of securities at a profit,
has in this way reduced the item from $106,887.49 on Sept
ber 1, 1872, to $4751.13 on July 31, 1891. To provid
transparent account to which can be carried all gains and lo
hereafter arising from sales of property belonging to the g
eral investments, the Corporation has now opened (Treasu
Statement, p. 1) a new account to be called "Gains and Lo
for General Investments," and to this account has charged
sum of $4751.13 standing (July 31, 1891) to the debi
"Unimproved Lands in Cambridge." This latter accou
thereby extinguished. The Corporation will undoubtedly
obliged, in the future as in the past, to buy land for gen
university purposes; but such purchases, if the total hold
should ever exceed the amount of the unrestricted Univer
Funds, can always be charged to the account opened in

under the title "Advances to University Lands," this account being allowed a fair rate of interest out of the unrestricted income of the University.

To disengage all the restricted funds — to whatever department belonging — from all interest in the large item called "Houses and Lands in Cambridge" and in the other real estate charged since 1866 to the account called "Unimproved Lands," the Corporation, at the suggestion of the Treasurer, has ordered (Treasurer's Statement, p. 3) "that all the real estate which on July 31, 1891, represented the investment account called Houses and Lands in Cambridge, together with all the real estate heretofore charged to the account called Unimproved Lands in Cambridge, be transferred, as of July 31, 1891, from the general investments to a special investment at a total valuation of $353,585.06, and that the account of such special investment be called 'University Houses and Lands.'" It has further ordered that this special investment be assigned to certain University Funds which are wholly unrestricted as regards both income and principal (Treasurer's Statement, p. 3). The Corporation believes that these measures will make the accounts clearer, and tend to prevent conflicts of pecuniary interests between different departments of the University. The time is at hand when the income of the unrestricted funds will be sufficient to meet the expenses which are clearly of common interest to all departments, such as general administrative salaries and expenses. When that time comes, and questions then arise as to the best use of new unrestricted funds, the measures above described will be found to have made the Corporation freer to deal with real estate in Cambridge for the general good of the University, and also to have disembarrassed the Corporation of possible antagonisms between the treasury rights of restricted and of unrestricted funds, and between the treasury interests of Cambridge and of Boston departments. The President invites the attention of the Overseers to the Treasurer's clear exposition of these measures, and of some supplementary votes which were passed simultaneously by the Corporation (Treasurer's Statement, pp. 1–7). The reasons for the several changes, and their effects in detail, will there be found fully set forth.

•bodies which preceeded it. This increase of work has a dou
reason. The gain in numbers by every department now under
charge of this Faculty has no doubt brought with it a more than p
portional increase in the difficulties of administration. The cha
which has occurred in the last five years in this respect may
gathered from the following record as to numbers of students: —

	1886–87.	1887–88.	1888–89.	1889–90.	1890–91
Harvard College . .	1077	1138	1180	1271	1339
Scientific School . .	14	20	35	65	88
Graduate School . .	70	96	95	107	125
	1161	1254	1310	1443	1552

These figures show clearly that before the change of organizat
was made, the numbers of Harvard College were already beyond
point where an effective supervision of details could be maintai
by a large body, also charged with the discussion and often with
decision of broad questions of policy or method. The same is t
of the Graduate School, which, with needs peculiar to itself, co
have but a moderate share of attention from the body formerly
charge of its interests. The Scientific School alone had not outgr
its old system, although the close connection of its studies and of
Faculty with the studies and the Faculty of Harvard College
made the continuance of the system inexpedient for other reaso
The new organization, therefore, during the last year was called u
to provide for the needs of a much greater number of students t
that which had for some time overtaxed the strength of the admi
trative machinery. This organization also improved, in every p
of its jurisdiction, the quality of the government administered by
In the College and in the Schools alike a marked increase in
promptness and thoroughness of administration throughout the y
has been a direct result of the concentration of responsibility
smaller boards, and this has tended everywhere in the direction
greater regularity and improvement in the general tone of the wh
body of students. Especially in the Graduate School, orderly
hesion has been given to a collection of young men who had previou
shown little tendency towards an associated life such as should
company and stimulate the pursuit of kindred studies. The import
increase in the number of hours of administrative work perform
has, therefore, borne its fruit. Some economy of labor may be
pected, as the several boards accumulate rules of proceedure
precedents, and are thus able to leave easily classified details m
freely to the discretion of their chairmen; but for the present it m
be said that the University owes no small debt to the instructors w

have patiently given their time to the often unattractive labors of the administrative boards and the committees entrusted with like functions.

During the last year the Faculty gave much attention to some details of organization designed to insure more efficient coöperation among instructors working in the same branch of study or in cognate branches. The rapid development of the elective system, calling more and more for special attainments within some definite part of the intellectual field, has tended strongly to separate instructors from each other and to fix the interests and the thoughts of each closely upon his own special work. On the other hand, the improvement of methods, the increase of equipment and of needs for equipment, and the new demands for united action created by the extension of higher instruction have no doubt of late tended to bring instructors together and to give greater importance to their action in common. As the net result of these opposing influences the various departments of study, — as, for example, Greek, English, French, Physics, and the like, — although never formally established by the bodies which preceded the present Faculty, have been gaining in strength for several years and securing a more and more distinct recognition as portions of the working machinery of this part of the University. Here and there a department, favored by the nature of its subject or by some strong personal influence, has outrun the others and has attained a recognized unity in advance of them, while others, from equally fortuitous conditions of an opposite kind, have lagged behind the general movement; but, on the whole, the tendency to solidify the departments has been well marked, and by this tendency some great advantages have been secured. The increased number and use of working libraries, which in some branches of study have so extended the possible range of the students' investigations as to transform the very system of instruction, have been fostered by the departments; the arrangement of conferences and lectures as adjuncts to class-room instruction has been encouraged; and the adjustment of courses of study to each other, as parts of a general body of knowledge, has been promoted, to the manifest improvement of the annual statement of courses offered.

As the unit of organization, however, the department is for many purposes too small. Besides the inconvenience of a subdivision for administrative purposes which does not correspond to any real or broad separation of intellectual interests, it has been found necessary even in the provisions for such rewards as Final Honors to recognize the close connection existing in fact between departments which are

separately organized. As examples of this, the cases of Honors Modern Literature, History, Political Science, and Natural Hist may be mentioned, — in all these cases the work done for Fi Honors covering, either by requirement or permission, studies in t or more departments. And it can hardly be doubted that for highest usefulness of the system of Honors the basis on which t are given needs in general to be broadened rather than limit Moreover, the scheme upon which, by the standing rules of Corporation and Overseers, the higher degrees for graduates are c ferred and a great body of graduate study has been built up, expres recognizes the classification of instruction under much broa divisions than those which have been developed in practice and n appear in the statement of courses offered by the Faculty. T classification indeed in several respects makes use of combinati similar to those just referred to in the award of College Honors. what are technically known as departments, twenty-four are named the Announcement of Courses of Instruction, and as the Univer expands their number and variety is certain to increase. For m purposes these departments, as a natural growth of our system, h proved their usefulness and the only question for the Faculty to se was that of making their organization more vigorous and effec with reference to them. But for other purposes a firm organizat having a wider scope was called for, and this was the chief object of arrangement which the Faculty matured and finally adopted after m debate.

Twelve divisions of the Faculty were constituted under the ti Semitic Languages and History, Ancient Languages, Modern L guages, Philosophy, History and Political Science, Fine Arts, Mu Pure and Applied Mathematics, Physics, Chemistry, Natural Hist and American Archaeology and Ethnology. In some cases, as Semitic Languages and History, Philosophy, Fine Arts, Mu Physics, Chemistry, and American Archaeology and Ethnology, division as established includes but a single department, either f the nature of the subject which found no natural place in combina with any other, or because from special circumstances it was belie that no practical gain would result from a more symmetrical allotm of the field. In the other cases the division includes two or m departments, that of Modern Languages including no less than f Formal organization, which had not existed before, is given to departments and also to the divisions by the annual appointmen chairmen. To the divisions is given the charge of Honors Higher Degrees, the fixing of requirements therefor, and the ex ination of candidates. The business of ordinary administrat

ıch as the proposal of courses of instruction, the preparation of apers for admission examinations, the care of working libraries, the upervision of holders of fellowships, the care in some cases of de- artmental publications, and the arrangements for lectures, confer- nces, readings and other auxiliary instruction in case of need, falls ıto the hands either of the divisions or of their component depart- ıents, or is divided between them, as is deemed best in any given ase. In short, the system of organization is flexible and makes no ttempt to secure uniformity where essential conditions are found to ary; but it establishes the larger unit of administrative division, gives it certain important functions, for some of which since the change in the functions of the Academic (now University) Council no provision had existed, and invites the closer coöperation of partially combined departments by the transfer of their ordinary administration in whole or in part to the division, where the members of all the de- partments concerned stand on equal terms in dealing with subjects of common interest.

The Faculty also took the further step of making provision for adding to any division upon certain terms a limited number of members who are not instructors in any department included within the division. In some cases this enlargement of the division for administrative purposes was made necessary, by the fact that only one or two instructors represent important fields of study which do not find any easy union with others for which the Faculty provides, — as, for example, is the case with Music, Fine Arts, and American Archaeology and Ethnology. But beyond this, the opinion had gained ground that much inequality in the terms on which in practice recommendations for Honors and the Higher Degrees are made might be avoided and a closer approach to some common stand- ard might be secured, by means of a limited interchange of members and comparison of methods and experience between different sections of the Faculty. For the steady and just administration of degrees and distinctions much is required besides expert knowledge of the branch of study immediately concerned, and there is probably no department or division which could not profit by the presence and counsel of colleagues, whose experience has been gained in some other branch and who see the questions which may be laid before them from a different point of view from that which is perhaps most natural for those in whose domain the questions have arisen. Probably, too, no department or division could fail to profit in some degree by the com- parison of observation and experience, gained by such of its members as have had an opportunity to see from the inside the working of some other group of instructors. The Academic Council formerly provided

for this enlargement of the numbers and the horizon of the committ entrusted with the Higher Degrees, by including in each commi members of different faculties — engaged, therefore, in pursuits wh might be cognate but were not identical, and thus uniting variety judgment with the expert's familiar knowledge of the subject-mat The defective organization of the Academic Council for much of work and the slow growth for several years of the interests in charge prevented this part of its machinery from taking its full effe but it seems to be clear that the same needs that gave that machin its shape press upon the Faculty, as the successor of the Counci some of its functions, and, therefore, required the adoption of sim provisions.

It was by a somewhat different line of consideration that Faculty was led to adopt a provision for the possible enlargement the divisions for the purpose of dealing with Honors and Higher grees, by the addition of persons who are not members of the Facu Starting with the general proposition that, in order to secure the va and dignity of Honors and Higher Degrees, every committee entrus with the duty of examining and recommending for either should c sist of at least five persons, and that for this duty and for the pro settlement of all questions connected with it a sufficient provision expert knowledge should be secured, the Faculty found it neces to make some arrangement for cases in which an important subjec represented by only one or two instructors, and in which additio expert knowledge is not easily found without going outside of teaching body in Cambridge. In connection with these cases it thought to be well to provide for others in which the assistance outside experts in the subject-matter may be advantageous, an general provision was therefore adopted for the possible increase the division committee in any subject by the addition of not m than two members of the Faculty who are not teachers in the divis and of not more than two persons who are not members of the Facu the selection of additional members being subject to the approval the original members of the committee. By this means it was lieved that not only the obvious needs of the divisions comprising instructors could be met, but the need of wider representation aris in some, if not in all, of the larger divisions might be safely m without removing the leading influence in any case from the hands which it should properly rest.

The working organization of the divisions and of the departme under them was completed at the close of the last year by the appo ment of chairmen and in some cases of additional members b from within the Faculty and from without. The growth of the syst

eeds be gradual, but it is believed that it takes the direction lly called for by the recent development of our instruction, at it will tend to a steady increase of regularity, efficiency, nited effort in dealing with much of the practical work of tion.

statement of the courses of instruction provided under the on of the Faculty is given herewith, in somewhat condensed the steady growth of the list and the increase of its variety brought it to the point where some curtailment of description voidable. The usual statement of the number of hours of attendance for the student and of the number of students ng each course is given, the latter being the numbers at the f the year, leaving out of the account such students as may reason have left a course before the final examination.

COURSES OF INSTRUCTION, 1890–91.*

SEMITIC LANGUAGES AND HISTORY.

duates and Undergraduates : —

fessor Lyon. — Hebrew. — Davidson's Introductory Hebrew Grammar. Explanation of parts of Genesis and of the Psalm-book. 3 hours.
3 Se., 2 So., 1 Sp. Total 6.

fessor Lyon. — Babylonian-Assyrian History from native sources, with parison of the Greek and Roman writers. 1 hour.
2 Gr., 3 Se., 1 Sp. Total 6.

fessor Lyon. — History of Israel, political and social, from the period of Judges until Ezra. 2 hours.
1 Gr., 5 Se., 3 Ju., 1 So., 2 Fr., 1 Sp. Total 13.

fessor Toy. — History of the Hebrew Religion, with comparison of other itic Religions. 2 hours. 2 Gr., 2 Se., 1 Ju., 1 Fr. Total 6.

fessor Toy. — History of prechristian Hebrew literature. 2 hours.
1 Gr. Total 1.

fessor Toy. — Political and literary history of the Bagdad Califate. our. 3 Gr., 2 Se., 1 Ju. Total 6.

ofessor Toy. — Political and literary history of the Spanish Califate. our. Omitted in 1890–91.]

designate the various kinds of students in the several courses, the g abbreviations are used: Gr. for Graduate Student, Se. for Senior, Ju. ior, So. for Sophomore, Fr. for Freshman, Sp., for Special Student, Scientific Student, Di. for Divinity Student, Law for Law Student, Me. ical Student, Ve. for Student in Veterinary Medicine, and Bu. for Stu- the Bussey Institution.

Primarily for Graduates: —

2. Professor LYON. — Hebrew (second course). — Syntax. — Driver's Hebr Tenses. — Interpretation of parts of the Prophets and the Poetical Boo 2 hours. 2 Se., 1 Ju., 1 So. Total

[3[1]. Professor LYON. — Classical Aramaic (Syriac). — Grammars of Nestle s Nöldeke. — Rödiger's Chrestomathy. — The Peshitto version of the N Testament. 2 hours. 1st half-year. Omitted in 1890-9

[3[2]. Professor LYON. — Jewish Aramaic. — Keutzsch's Biblisch-Aramäisc Grammatik. — Brown's Aramaic Method. — Interpretation of selections fr the Targums, and from Daniel and Ezra. 2 hours. 2d half-year. Omitted in 1890-9

4. Professor LYON. — Assyrian. — Lyon's Assyrian Manual. — References Delitzsch's Assyrian Grammar. — Delitzsch's Assyrische Lesestücke. 2 hou 2 Gr., 1 Sp. Total

5. Professor LYON. — Assyrian (second course). — Delitzsch's Assyrian Gra mar. — The Cuneiform Inscriptions of Western Asia (interpretation of sel tions). 2 hours. 1 Gr. Total

7. Professor TOY. — Arabic. — Lansing's Grammar. — The Thousand and O Nights. 2 hours. 1 Gr., 2 Se., 1 Ju. Total

8. Professor TOY. — Arabic (second course). — Wright's Grammar. — Int pretation of parts of the Moallakât, of Motenebbi and other poets, and of t Korân. 2 hours. 1 Gr., 1 Sp. Total

[9. Professor TOY. — Ethiopic. — Dillmann's Grammatik and Chrestomath 1 hour. Omitted in 1890-9

10. Professor TOY. — Phoenician. — Schröder's Phönizische Sprache. — Corp Inscriptionum Semiticarum. 1 hour. 4 Gr. Total

[11. Professor TOY. — General Semitic Grammar. 1 hour. Omitted in 1890-9

INDO-IRANIAN LANGUAGES.

1. Professor LANMAN. — Sanskrit. — Sounds and inflexions (Whitney's Gra mar). — Elementary composition and translation (Perry's Primer). — Re ing of easy prose and verse (Lanman's Reader). 3 hours. 2 Se., 1 Ju., 1 Sp. Total

2. Professor LANMAN. — Sanskrit (second course). — Classical Sanskrit. Selections from the Pañcatantra, Mahā-Bhārata, and Viṣnu-Purāṇa (Geige Manual and Böhtlingk's Chrestomathy). 3 hours. 1st half-year. 1 Gr. Total

Primarily for Graduates: —

3. Professor LANMAN. — Sanskrit (third course). — Introduction to the langua and literature of the Vedas. 3 hours. 2d half-year. 1 Gr. Total

[4. Professor LANMAN. — Pāli. — The Sacred Books of Buddhism. 3 hours. Omitted in 1890-9

GREEK.

INTRODUCTORY LECTURES for Freshmen studying Greek (open to the publi

(1) Dr. MORGAN. — On Lysias and his Times.
(2) Professor GOODWIN. — On Socrates and Plato.
(3) Professor J. W. WHITE. — On Homer.
(4) Dr. TARBELL. — On the Greek Theatre.

ARBELL. — Herodotus (selections). — Homer (selections from Books I. of the Iliad). — Reading at sight. 3 hours.
1 Se., 2 Ju., 1 So., 15 Fr., 2 Sp. Total 21.

ARBELL. — Greek Prose Composition (elementary course). 3 hours night. 1 Ju., 4 Fr., 2 Sp. Total 7.

. P. PARKER. — Lysias (selections). — Plato (Apology and Crito). — r (Odyssey, Books VII.–XII.). — Euripides (Medea). — Reading at 3 hours. 1 Se., 42 Fr., 2 Sp. Total 45.

sor J. W. WHITE and Dr. TARBELL. — Lysias (selections). — Plato ogy and Euthyphro). — Homer (Odyssey, Books I.–VI.). — Aristo- s (Clouds). — Reading at sight. 3 hours.
2 Ju., 2 So., 29 Fr., 3 Sp. Total 36.

sor WRIGHT and Dr. MORGAN. — Lysias and Isocrates (selections). (Apology and Laches). — Homer (Odyssey, six books), — Euripides ea). — Aristophanes (Clouds). — Reading at sight. 3 hours.
2 So., 28 Fr. Total 30.

MORGAN. — Greek Prose Composition (second course). — Goodwin's s and Tenses. 3 hours a fortnight. 2 So., 12 Fr. Total 14.

ORGAN. — Lucian (selections). — Demosthenes (Philippics). — Lyric (selections). — Euripides (Alcestis). — Aristophanes (Peace). — ng at sight. 3 hours. 1 Ju., 15 So. Total 16.

or J. W. WHITE. — Thucydides (Book I.). — Aristophanes (Birds). phocles (Oedipus Tyrannus). — Aeschylus (Prometheus Bound). — teral reading of the Acharnians of Aristophanes and the Antigone of ocles. — Reading at sight. 3 hours.
1 Gr., 2 Se., 1 Ju., 28 So., 1 Fr. Total 33.

or WRIGHT. — Greek Prose Composition (third course). — Transla- nd original composition. — Oral exercises. 1 hour.
2 Gr., 3 Se., 4 Ju., 11 So. Total 20.

or WRIGHT. — Demosthenes (On the Crown, with parts of the False ion). — Aeschines (Against Ctesiphon, selections). — Lycurgus (Against ates). — Aeschylus (Seven against Thebes). — Sophocles (Electra). istophanes (Frogs). 3 hours. 9 Se., 15 Ju., 2 So. Total 26.

aduates and Undergraduates: —

sor WRIGHT. — Greek Prose Composition (fourth course). — Written osition in the style of Demosthenes and of Plato, with studies of classical ls. — Translation of selections of standard English (rhetorical and sophical). 1 hour. 1 Gr., 11 Se., 2 Ju. Total 14.

sor J. W. WHITE. — The Comedies of Aristophanes, with lectures on Scenic and Private Antiquities. 2 or 3 hours.
4 Gr., 5 Se., 1 Ju. Total 10.

essor WRIGHT. — Three Centuries of Greek History (600–300 B.C.). — ies in Institutions and in Biography. — Lectures, with collateral reading theses. 3 hours. 3 Gr., 10 Se., 1 Ju., 3 So., 1 Sp. Total 18.

essor GOODWIN. — Plato (Republic.) — Aristotle (Ethics, Books I.–IV. X.). 3 hours. 1 Gr., 12 Se., 1 Ju. Total 14.

9. Professor Goodwin. — The Tragedies of Aeschylus. 3 hours.
5 Gr., 4 Se., 1 Ju. Tot

[13. Professor Goodwin. — Aristotle (Politics). 2 hours. 2d half-year.
Omitted in 189

[10. Professor J. W. White. — The Life of the Ancient Athenians, des
and illustrated by the aid of the Literature and of the Monuments. 3
Omitted in 189

[11. Professor Allen. — History of Greek Literature. — Lectures, with
tion of the students' private reading. 3 hours. Omitted in 189

LATIN.

Primarily for Undergraduates : —

A. Mr. C. P. Parker. — Cicero (selected orations). — Virgil. — Pract
reading at sight, 3 hours. 21 Fr., 9 Sp., 1 Sc. Tot

F. Dr. Howard. — Latin Composition (elementary course). — Exercises
on selected Lives of Nepos. 3 hours a fortnight.
4 So., 9 Fr., 1 Sp. Tot

B. Drs. Morgan and Howard and Mr. Nicolson. — Cicero (De Amiciti
Livy (Books XXI. and XXII.). — Terence (Adelphoe and Andria). —
ing at sight. 3 hours. 2 So., 65 Fr., 10 Sp. Tot

C. Drs. Morgan and Howard and Mr. Nicolson. — Cicero (De Amiciti
Livy (Books I. and II.). — Terence (Phormio and Andria). — Readi
sight. 3 hours. 6 So., 65 Fr., 5 Sp. Tot

D. (*Advanced Course for Freshmen.*) Dr. Howard. — Cicero (De Ami
— Livy (Books I. and II.). — Terence (Phormio and Heautontimorume
— Plautus (Menaechmi). — Reading at sight. 3 hours. 28 Fr. Tot

E. Mr. Nicolson. — Latin Composition (second course). 3 hours a fortn
2 So., 14 Fr., 1 Sp. Tot

1. Professors Lane and Smith. — Pliny (selected letters). — Tacitus (
ries; Dialogus). — Horace (Odes and Epodes). — Reading at sight. 3
2 Se., 1 Ju., 24 So., 1 Fr. Tot

2. Mr. C. P. Parker. — Pliny (selected letters). — Cicero (Tusculan Di
tions). — Horace (Odes, and Epodes). — Reading at sight. 3 hours.
1 Se., 2 Ju., 27 So., 3 Fr., 2 Sp. Tot

3. Mr. C. P. Parker. — Latin Composition (third course). 1 hour.
2 Gr., 1 Se., 4 Ju., 10 So. Tot

4. Dr. Tarbell. — Horace (Satires and Epistles). 3 hours.
16 Se., 11 Ju., 4 So., 1 Fr. Tot

[5. Professor Greenough. — Ancient Philosophy, as set forth by Cicer
Finibus; Academica). 3 hours. 1st half-year. Omitted in 189

For Graduates and Undergraduates : —

6[1]. Professor Smith. — The Reign of Tiberius. — The Annals of T
(Books I.–VI.) and Suetonius' Life of Tiberius, with lectures on the
tutions of the early empire. 3 hours. 1st half-year.
1 Gr., 6 Se., 12 Ju. Tot

or Lane. — Roman Society in the first century. — The principal of Juvenal, with selected Epigrams of Martial. 3 hours. 2d half-
2 Gr., 10 Se., 16 Ju., 1 So. Total 29.

r Allen. — Practice in Latin expression and style. — Study of selec-m classical prose as models. — Translation into Latin prose. 1 hour,
2 Gr., 8 Se., 3 Ju. Total 13.

r Lane. — Plautus. — Cicero (Brutus). 3 hours. 1st half-year.
2 Gr., 19 Se., 1 Ju., 1 So. Total 23.

r Lane. — Lucretius. — Catullus. 3 hours. 2d half-year.
3 Gr., 16 Se., 3 Ju. Total 22.

CLASSICAL PHILOLOGY.

r *Graduates:* —

Allen.—The Greek Dialects, studied from Inscriptions.—Lectures Grammar. 3 hours. 2 Gr. Total 2.

Lane.—Latin Grammar. — Quintilian (Book I.).— Aulus Gellius. Inscriptions (Allen's Early Latin Remnants).—Discussions of points nar, pronunciation, &c. 1 hour. 5 Gr., 4 Se. Total 9.

or Goodwin. — The Athenian Expedition to Sicily in 415–413 B.C., in connection with the Sixth and Seventh Books of Thucydides. 2d half-year. Omitted in 1890–91.]

or Goodwin. — The Political and Legal Antiquities of Athens, d by the Legal Orations of Demosthenes and other Attic Orators. 2d half-year. Omitted in 1890–91.]

or J. W. White. — The Private Life of the Greeks (selected topics, cial study of the literary sources). 2 hours. Omitted in 1890–91.]

r Allen. — The Roman Religion and Worship. — Ovid's Fasti. 2d half-year. 3 Gr., 1 Se. Total 4.

ell. — Roman Archaeology. — Roman Architecture and Engineer-opography and architectural history of the city of Rome. 2 hours.
1 Gr., 1 So. Total 2.

ENGLISH.

or *Undergraduates:* —

Briggs and Mr. Lathrop. — Rhetoric and English Composition. Hill's Rhetoric. — Lectures on Rhetoric and on English Literature. en exercises and oral discussions. 3 hours.
1 Se., 8 So., 316 Fr., 63 Sp., 20 Sc. Total 408.

rs Wendell and Kittredge, and Messrs. Gates, Baker, Carey, elbut. — Twelve Themes. — Lectures and discussions of themes.
5 Se., 12 Ju., 260 So., 33 Fr., 24 Sp., 8 Sc. Total 342.

Baker and Thompson. — Forensics. — Lectures on Argumenta-nposition. — A brief based on a master-piece of argumentative com- — Five forensics, preceded by briefs. — Discussions of briefs and sics. 35 Se., 217 Ju., 11 So., 9 Sp., 1 Sc. Total 273.

12. Professor WENDELL and Mr. FLETCHER. — English Composition.— Lect and daily themes. 3 hours. 2 Gr., 56 Se., 57 Ju., 1 So., 4 Sp. Total

18. Mr. BAKER. — Argumentative Composition. — Eight forensics, prec by briefs. — Lectures and conferences. 1 hour. 9 Se., 1 Sp. Tota

6. Professors TAUSSIG and HART, and Messrs. HAYES and MASON. — Oral cussion of Topics in Political Economy and History. 2 hours. 25 Se. Tota

10. Mr. HAYES. — Elocution. 2 hours. 21 Se., 22 Ju., 2 So., 3 Sp., 1 Sc. Tota

[3[1]. Professor CHILD. — Anglo-Saxon. — Sweet's Anglo-Saxon Reader. 3 h 1st half-year. Omitted in 1890-

11. Professor KITTREDGE. — English Literature. — Bacon. — Milton. 3 h 13 Se., 1 Ju., 10 So., 1 Fr., 2 Sp. Tota

7. Professor WENDELL. — English Literature of the Eighteenth Cen 1 hour. 1 Gr., 24 Se., 28 Ju., 26 So., 2 Fr., 5 Sp. Tota

[8. Professor A. S. HILL. — English Literature. — Poets of the Nineteenth ury. 2 hours. 1st half-year. Omitted in 1890-

9. Mr. GATES. — English Literature. — Prose Writers of the Nineteenth ury. 1 hour. 26 Se., 24 Ju., 19 So., 4 Fr., 11 Sp., 2 Sc. Tota

For Graduates and Undergraduates : —

5. Professor BRIGGS. — English Composition (advanced course). 3 hours 1 Gr., 18 Se., 4 Ju., 1 Sp. Tota

[1. Professor CHILD. — English Literature. — Chaucer. 3 hours. Omitted in 1890-

2. Professor CHILD. — English Literature. — Shakspere. 3 hours. 5 Gr., 43 Se., 28 Ju., 23 So., 2 Fr., 6 Sp. Total

Primarily for Graduates : —

19. Professor KITTREDGE. — Historical English Grammar. 3 hours. 2d year. 3 Gr., 2 Se. To

16. Professor BRIGGS. — History and Principles of English Versific 1 hour. 2 Gr., 4 Se., 1 Ju. To

[3[2]. Professor KITTREDGE. — Anglo-Saxon Poetry. 3 hours. 2d half-yea Omitted in 1890

4. Professors CHILD and KITTREDGE. — Early English. — Old English liter from 1200 to 1450.— Mätzner's Altenglische Sprachproben. 3 hours. 3 Gr., 3 Se. To

14. Mr. BAKER. — English Literature. — The Drama from the Miracle Pl the Closing of the Theatres. 1 hour. 2 Gr., 5 Se., 1 Ju., 2 Sp. Tot

[17. Professor WENDELL. — English Literature of the Elizabethan p 1 hour. Omitted in 1890

[15. Professor BRIGGS. — English Literature of the Seventeenth Cen 2 hours. 2d half-year. Omitted in 1890

20. Professor WENDELL. — Course of Research. 1 Gr. To

GERMAN.

y for Undergraduates : —

ICHOLS and Dr. POLL. — Elementary Course. — Grammar. — Transla-
rom German into English, and elementary exercises in translating into
an. 3 hours.
9 Se., 4 Ju., 6 So., 134 Fr., 28 Sp., 10 Sc., 1 Law. Total 192.

OLL. — Elementary Course. — Grammar. — Composition. — Translation
eading at sight. — Selections in Prose and Poetry. 5 hours.
2 Se., 1 Ju., 18 Fr., 3 Sp. Total 24.

ICHOLS. — Intermediate Course. — Grammar. — Composition. — Trans-
and reading at sight. — Selections from the Writers of the Eighteenth
Nineteenth Centuries. 3 hours.
2 Ju., 5 So., 62 Fr., 3 Sp., 4 Sc. Total 76.

ssor BARTLETT. — Writers of the Nineteenth Century. — German Prose,
y, and Drama. — Composition. — Reading at sight. 3 hours.
2 Se., 6 Ju., 57 So., 9 Fr., 2 Sp., 2 Sc. Total 78.

ssor VON JAGEMANN. — German Prose. — Subjects in History and Biog-
. — Composition. — Reading at sight. 3 hours.
8 Se., 2 Ju., 37 So., 12 Fr., 4 Sp., 6 Sc., 1 Di. Total 70.

nan Prose. — Subjects in Natural Science. — Reading at sight. 3 hours.
Omitted in 1890–91.]

ssor FRANCKE. — Lessing and the German Drama. — Practice in writing
nan. 3 hours. 4 Se., 11 Ju., 14 So., 18 Fr., 5 Sp., 1 Sc. Total 53.

ssor BARTLETT. — Schiller and his Contemporaries. — Practice in writ-
German. 1 Gr., 4 Se., 6 Ju., 5 So., 6 Fr., 1 Sc. Total 23.

ssor VON JAGEMANN. — Goethe and the Romantic School. — Practice in
ing German. 3 hours.
1 Gr., 6 Se., 16 Ju., 31 So., 13 Fr., 2 Sp. Total 69.

POLL. — German Grammar and practice in writing German. 1 hour.
1 Gr., 5 Se., 10 Ju., 17 So., 11 Fr., 5 Sp. Total 49.

ssor FRANCKE. — General History of German Literature. — Lectures,
collateral reading. 3 hours. 5 Se., 9 Ju., 8 So., 1 Sp. Total 23.

duates and Undergraduates : —

ssor FRANCKE. — History of German Literature and Art from the Ref-
ation to the middle of the Nineteenth Century. — Lectures and theses.
urs. Omitted in 1890–91.]

ssor FRANCKE. — History of German Literature and Art in the Middle
s. — German Mythology. — Epics and Lyrics of the time of the Crusades.
Romanesque and Gothic Art. — Growth of Cities. — The Renaissance. —
tures and theses. 2 hours. 2 Se., 3 Ju., 2 So. Total 7.

ssor VON JAGEMANN. — Nibelungenlied. — Kudrun. — Iwein. — Parzival.
Walther von der Vogelweide. — Translation into Modern German. —
ctures and theses. 2 hours. 1 Gr., 2 Se., 1 Ju., 1 So. Total 5.

Primarily for Graduates: —

20*a*. Professor FRANCKE. — Critical Study of selected topics in the Histo German Literature. 1 hour. 1 Gr., 1 Se. To

20*b*. Professor BARTLETT. — Critical Study of Schiller's Life and Works. T 1 hour. 1 Gr. To

GERMANIC PHILOLOGY.

Primarily for Graduates: —

12. Professor VON JAGEMANN. — Gothic. 1 hour. 2 Gr., 3 Se. To

[13. Professor KITTREDGE. — Icelandic (Old Norse). — Selections from th gas and the Elder Edda. 3 hours. Omitted in 1890

[14. Professor VON JAGEMANN. — Old Saxon. 1 hour. Omitted in 1890

[15. Professor VON JAGEMANN. — Old High German. 1 hour. Omitted in 1890

16. Professor KITTREDGE. — Germanic Mythology. 3 hours. 1st half-yea 2 Gr. To

[17. Professor VON JAGEMANN. — Middle High German. — Critical study text (advanced course). 1 hour. Omitted in 1890

18. Professor VON JAGEMANN. — Historical Grammar. — Introduction t study of Germanic Philology. 1 hour. 1 Gr. To

FRENCH.

Primarily for Undergraduates: —

A. Professor DE SUMICHRAST and Dr. MARCOU. — Elementary Cours French Prose. — Chardenal's First and Second French Courses. 3 hou 3 Se., 3 Ju., 4 So., 30 Fr., 15 Sp., 11 Sc. Tot

1*a*. Professors COHN and DE SUMICHRAST and Dr. MARCOU. — Grammar, ing, and composition. — George Sand. — Dumas. — About. — Sandea La Fontaine. 3 hours.
1 Gr., 4 Se., 10 Ju., 30 So., 100 Fr., 19 Sp., 5 Sc. Total

1*b*. Professor SANDERSON and Dr. MARCOU.— Reading at sight of French P Grammar. — Translation from French to English and from Englis French. 3 hours. 4 Se., 8 Jr., 15 So., 34 Fr., 4 Sp., 5 Sc. Tot

2. Professor SANDERSON. — French Prose and Poetry. — La Fontaine. — neille. — Racine. — Molière. — Beaumarchais. — Alfred de Musset. — zac. — Historical Grammar. — Composition. 3 hours.
1 Gr., 8 Se., 14 Ju., 67 So., 46 Fr., 10 Sp., 1 Sc. Total

3. Dr. MARCOU. — Practice in writing and speaking French (eleme course). 2 hours. 4 Se., 7 Ju., 12 So., 11 Fr., 4 Sp., 2 Sc. Tot

4. Mr. DANION. — Practice in writing and speaking French (interme course). 2 hours.
1 Gr., 7 Se., 19 Ju., 21 So., 10 Fr., 2 Sp., 2 Sc. Tot

5. Professor DE SUMICHRAST. — Practice in writing and speaking French vanced course). — Oral discussions. 2 hours.
5 Se., 8 Ju., 3 So., 4 Fr., 1 Sc. Tot

essors Bôcher and de Sumichrast. — General view of French Litera-
. — Théâtre classique. — Bossuet. — Voltaire. — Rousseau. — Victor
go. — Themes. 3 hours. 4 Se., 18 Ju., 24 So., 23 Fr., 6 Sp. Total 75.

duates and Undergraduates : —

fessors Cohn and Sanderson. — French Literature in the Nineteenth
ntury. — Lectures, themes, and collateral reading. 3 hours.
Omitted in 1890–91.]

fessors Cohn and Sanderson. — French Literature in the Eighteenth
ntury. — Lectures, themes, and collateral reading. 3 hours.
1 Gr., 10 Se., 11 Ju., 8 So., 2 Fr., 1 Sp. Total 33.

ofessors Bôcher and de Sumichrast. — French Literature in the Seven-
nth Century. — Lectures, themes, and collateral reading. 3 hours.
Omitted in 1890–91.]

ofessors Bôcher and de Sumichrast. — French Literature in the Six-
nth Century. — Lectures, themes, and collateral reading. 3 hours.
4 Se., 1 Ju., 3 So., 1 Fr. Total 9.

ofessor Cohn. — French Grammar. — Critical Study of modern texts. —
mposition. 3 hours. 1 Gr., 2 Se., 1 Ju. Total 4.

rily for Graduates : —

r. Marcou. — French Literature from the Thirteenth to the end of the
fteenth Century. — Lectures, themes, and collateral reading. 3 hours.
Omitted in 1890–91.]

. Marcou. — French Literature from the invasion of the barbarians to the
irteenth Century. — Lectures, themes, and collateral reading. 3 hours.
1 Gr., 2 Ju. Total 3.

Courses of Research.

dy of special topics in French Literature.

ofessor Cohn. — The *Chansons de Geste.* 1 Se.
r. Marcou. — The Romances of the Round Table. 1 Se.
ofessor Bôcher. — Montaigne. — Thesis. 1 Se.
ofessor Sanderson. — George Sand and Balzac as representatives
French Idealism and Realism. 1 Gr.
Total 4.

ITALIAN.

rily for Undergraduates : —

ofessor Sheldon. — Elements of Grammar. — Selections from modern
thors. — Elementary exercises in writing Italian. 3 hours.
1 Gr., 8 Se., 13 Ju., 12 So., 13 Fr., 1 Sp. Total 48.

ofessor Sheldon. — Literature of the Fifteenth and Sixteenth Centuries.
orquato Tasso. — Ariosto. — Machiavelli. — Pulci. — Reading at sight. —
ntax and prose composition, with reading of modern texts. 3 hours.
3 Se., 4 Ju., 1 So., 1 Sp. Total 9.

arily for Graduates : —

rofessor Nash. — "Il Trecento" (selections from Boccaccio, Petrarca,
Dante). — Early Italian (Nannucci's Manuale della Letteratura del Primo
Secolo). — Outline of the History of Italian Literature. — Composition.
3 hours. 1 Gr., 2 Se., 1 Ju. Total 4.

4. Professor NORTON. — Literature and the Fine Arts in Italy during the M Ages and the Renaissance, with special study of Dante. 3 hours. 1 Gr., 8 Se., 1 Ju., 1 Di. To

SPANISH.

Primarily for Undergraduates : —

1. Professors NASH and SHELDON. — Elements of Grammar. — Gil B El Eco de Madrid. — Elementary exercises in writing Spanish. 3 hou 1 Gr., 16 Se., 17 Ju., 17 So., 32 Fr., 5 Sp., 1 Sc. To

2. Professor NASH. — Modern Literature (novels, plays, etc.). — Read sight. — Advanced Grammar (Syntax). — Conversation. — Prose co tion. 3 hours. 2 Se., 1 Ju., 1 So. T

Primarily for Graduates : —

[3. Literature of the Sixteenth and Seventeenth Centuries (selections fro deron, Lope de Vega, and Cervantes). — Early Spanish (the Poem Cid). — Outline of the History of Spanish Literature (lectures, with c ral reading). 3 hours. Omitted in 189

ROMANCE PHILOLOGY.

Professor SHELDON. — Six lectures introductory to the comparative study Romance languages.

Primarily for Graduates : —

2. Professor SHELDON. — Phonetics, with special reference to the expla of sound-changes in the Romance languages. 2 hours. 2d half-year 2 Gr., 3 Se. T

[3. Professor SHELDON. — Old French. — Phonology and Inflexions. oldest texts. — La Chanson de Roland. — Joinville. — Chrétien de Tro Aucassin et Nicolette. 2 hours. Omitted in 189

4. Professor SHELDON. — Provençal. — Language and Literature, with tions from the poetry of the Troubadours. 2 hours. 2d half-year. 2 Se., 1 Ju. T

[5. Professor SHELDON. — Low Latin. 2 hours. 2d half-year. Omitted in 189

[6. Professor SHELDON. — Old French Dialects, with special reference to Norman. 2 hours. Omitted in 189

7. Professor SHELDON. — The French Element in English. 2 hours. 1 Se. T

20. Professor SHELDON. — Course of Research. 1 Gr. T

PHILOSOPHY.

Primarily for Undergraduates : —

Professor ROYCE. — Twelve Introductory Lectures on the History and Pro of Philosophy. (Open to the public.)

INTRODUCTORY COURSE.

1. Professors PALMER and JAMES and Dr. SANTAYANA. — General Introduction to Philosophy. — Logic, Psychology, and Metaphysics. — Jevons' Lessons in Elementary Logic. — Murray's Handbook of Psychology. — Lotze's Outlines of Metaphysics. 3 hours.
34 Se., 68 Ju., 67 So., 6 Fr., 25 Sp., 1 Sc. Total 201.

For Graduates and Undergraduates: —

SYSTEMATIC COURSES.

2. Professor JAMES. — Psychology. — James' Principles of Psychology. — Recitations, theses, lectures, and illustrative experiments. 3 hours.
4 Gr., 13 Se., 7 Ju., 3 So., 1 Sc. Total 28.

3. Professor ROYCE. — Cosmology. — Discussion of the Principal Problems of the Philosophy of Nature, with special reference to the modern doctrine of Evolution. — Lectures and theses. 3 hours.
2 Gr., 27 Se., 11 Ju., 2 Sp., 1 Sc., 1 Di. Total 44.

4. Professor PALMER. — Ethics. — The Theory of Morals. — Lectures, theses, and private reading. 3 hours.
5 Gr., 37 Se., 13 Ju., 4 So., 3 Sp., 1 Law. Total 63.

5. Professor F. G. PEABODY. — The Philosophy of Religion; its methods and principles. — Lectures and an essay, 1 hour.
3 Gr., 4 Se., 1 Ju., 1 Sp. Total 9.

6. Professor EVERETT. — The Psychological Basis of Religious Faith. 1 hour.
2 Sp., 1 Sc. Total 3.

HISTORICAL COURSES.

8. Professor EVERETT. — Study in the Comparative History of Religions, particularly the Vedic religion, the Hindu philosophies, Buddhism, Mazdaism, and the Chinese religions. 2 hours. 2 Se., 1 Sp., 1 Sc. Total 4.

9. Professor PALMER. — Greek Philosophy. — Zeller's Outlines of Greek Philosophy. — Lectures and theses. 3 hours. Omitted in 1890–91.]

10. Professor JAMES. — Descartes, Spinoza, and Leibnitz. — Lectures and theses. 3 hours. 5 Se., 1 Ju. Total 6.

11. Dr. SANTAYANA. — English Philosophy from Hobbes to Hume. — Lectures and theses. 3 hours. 7 Se., 2 Ju., 1 Sp. Total 10.

12. Professor ROYCE. — The Movement of German Thought from 1770–1830. — Kant. — Fichte. — Schelling. — Hegel. — Lectures, theses, and private reading. 3 hours. 3 Gr., 13 Se., 2 Ju. Total 18.

[13. Dr. SANTAYANA. — Contemporary Systems. — The Philosophy of Lotze. — Lotze's Microkosmus. 3 hours. Omitted in 1890–91.]

14. Professor F. G. PEABODY. — The Ethics of the Social Questions. — The questions of Charity, Divorce, the Indians, Temperance, and the various aspects of the Labor Question (Socialism, Communism, Arbitration, Co-operation, etc.), as problems of practical Ethics. — Lectures, essays, and practical observations. 3 hours.
4 Gr., 53 Se., 28 Ju., 4 So., 3 Fr., 7 Sp., 1 Sc., 3 Di. Total 103.

Primarily for Graduates: —

7. Professor EVERETT. — The Content of Christian Faith. — Lectures and essays. 3 hours.

COURSES OF RESEARCH.

20*b*. Professor ROYCE. — Metaphysical Seminary. — Subject for the year: Development of the Hegelian System. — Lectures, papers, and ori research. 2 hours. 3 Gr. Tot

20*c*. Professor PALMER. — Ethical Seminary. — Subject for the year: Mo Pessimism. — Schopenhauer and Hartmann. — Theses. 2 hours. 4 Gr., 1 Se., 1 Di. Tot

20*d*. Professor PALMER. — Questions in Ethics for individual investigation. 2 Gr. Tot

POLITICAL ECONOMY.

Primarily for Undergraduates: —

1. Professor TAUSSIG and Mr. COLE. — First half-year: Mill's Principle Political Economy. 3 hours.

Second half-year: —

Division *A* (Theoretical): Mill's Principles of Political Economy. — Cair Leading Principles of Political Economy. 3 hours.

Division *B* (Descriptive): Lectures on Finance, Labor and Capital, C eration. — Hadley's Railroad Transportation. — Laughlin's Bimetal 3 hours.

A, 10 Se., 53 Ju., 50 So., 2 Fr., 17 Sp., ½ Sc., 1 Law; *B*, 12 Se., 31 15 So., 2 Fr., 7 Sp. Total

4. Professor DUNBAR. — Economic History of Europe and America since Seven Years' War. — Lectures and written work. 3 hours. 29 Se., 28 Ju., 25 So., 4 Fr., 16 Sp., 1 Sc. Total

For Graduates and Undergraduates: —

2. Professor TAUSSIG and Mr. BROOKS. — History of Economic Theor Examination of selections from Leading Writers. — Socialism. 3 hour 4 Gr., 10 Se., 8 Ju., 1 Sp. Tota

3. Mr. BROOKS. — Investigation and Discussion of Practical Economic Q tions. — Social Questions. — Short theses. 3 hours. 1st half-year. 1 Gr., 7 Se., 1 Ju., 1 Sp. Tota

6. Professor TAUSSIG. — History of Tariff Legislation in the United St 2 hours. 2d half-year. 1 Gr., 28 Se., 12 Ju., 2 Sp. Tota

8. Mr. COLE. — History of Financial Legislation in the United States. 2 ho 1st half-year. 1 Gr., 29 Se., 13 Ju., 3 Sp. Tota

7. Professor DUNBAR. — Public Finance and Taxation. — Cohn's Finanzwis schaft. 3 hours. 2 Gr., 4 Se., 1 Ju. Tot

9. Professor TAUSSIG. — Railway Transportation. — Lectures and written w 3 hours. 2d half-year. 14 Se., 4 Ju., 2 Sp. Total

Primarily for Graduates: —

COURSES OF RESEARCH.

20. Professors DUNBAR and TAUSSIG. — Special topics in Economic Theory History. 1 Gr., 2 Se. Tot

HISTORY.

Undergraduates: —

Professor CHANNING. — Mediaeval and Modern European History (introductory course). 3 hours. 4 Ju., 51 So., 162 Fr., 31 Sp., 7 Sc. Total 255.

Professor MACVANE. — Constitutional Government (elementary course). 3 hours. 1st half-year.
1 Se., 21 Ju., 73 So., 74 Fr., 28 Sp., 2 Sc. Total 199.

Mr. BENDELARI. — Roman History to the reign of Diocletian. 3 hours.
Omitted in 1890–91.]

Mr. BENDELARI. — History of Western Europe from the Germanic Invasions to the Tenth Century, with especial reference to Institutions. 3 hours.
5 Se., 3 Ju., 6 So., 1 Fr., 2 Sp. Total 17.

Dr. SNOW. — History of France to the reign of Louis XIV., with especial reference to Institutions. 3 hours. 5 Se., 2 Ju. Total 7.

Dr. GROSS. — Constitutional History of England to the Sixteenth Century. 3 hours. 1 Gr., 10 Se., 6 Ju., 2 So., 1 Fr. Total 20.

Professor CHANNING. — American History (to 1783). 3 hours.
14 Se., 15 Ju., 22 So., 1 Sp., 2 Sc. Total 54.

Mr. BENDELARI. — European History during the Seventeenth Century and the first half of the Eighteenth. 3 hours.
12 Se., 15 Ju., 12 So., 7 Fr., 3 Sp. Total 49.

Professors MACVANE and CHANNING. — European History from the Middle of the Eighteenth Century. 3 hours.
1 Gr., 25 Se., 31 Ju., 50 So., 4 Fr., 12 Sp. Total 123.

Professor HART. — Constitutional and Political History of the United States (1783–1861). 3 hours. 43 Se., 40 Ju., 26 So., 2 Fr., 5 Sp., 1 Sc. Total 117.

Professor HART. — General History of the United States. 3 hours. 2d half-year. 3 Se., 15 Ju., 32 So., 17 Fr., 16 Sp., 2 Sc. Total 85.

Dr. SNOW. — Elements of Public International Law. — History of Treaties. 3 hours. 37 Se., 9 Ju., 2 Sp. Total 48.

narily for Graduates: —

Mr. BENDELARI. — Early Mediaeval Institutions. 1½ hours. 1 Gr. Total 1.

Dr. GROSS. — The Sources and Literature of English Constitutional History. 1 hour. 1 Se. Total 1.

Dr. SNOW. — History of the Government and Institutions of France to the reign of Louis XIV. Omitted in 1890–91.]

Professor EMERTON. — General Church History. 3 hours.
1 Se., 1 Sp. Total 2.

Mr. BENDELARI. — English Constitutional History from the Tudor period to the accession of George I. Omitted in 1890–91.]

Professor CHANNING. — History of American Institutions to 1783. 1 hour.
4 Gr., 1 Se. Total 5.

Professor HART. — Constitutional development of the United States. — Discussion of Constitutional principles in connection with historical questions. 1 hour. 1 Gr., 5 Se., 2 Ju., 1 Sp. Total 9.

28. Professors MACVANE and CHANNING. — History of Continental Euro (chiefly of France and Germany) since the Seven Years' War. 4 hou 1st half-year. 3 Se. Total

29. Professors MACVANE and CHANNING. — Constitutional History of Engla since the accession of George I. 4 hours. 2d half-year. 2 Gr., 2 Se. Total

30. Professor HART. — Federal Government. — Historical and comparati 3 hours. 1st half-year. 11 Se., 3 Ju. Total

31. Professor MACVANE. — Leading principles of Constitutional Law. — Selec cases, American and English. 3 hours. 2d half-year. 1 Gr., 10 Se., 5 Ju. Total

32. Dr. SNOW. — The historical development of International Law. 2 hours. 1 Gr. Total

COURSES OF RESEARCH.

20*a*. Professor EMERTON. — Church and State in the Middle Ages. — Semina 2 hours. 1 Gr., 2 Di. Total

20*b*. Dr. GROSS. — The History of Local Government during the Middle Ag especially in Great Britain. — Thesis. 3 hours. 1 Se. Total

[20*c*. Mr. BENDELARI. — English History in the period of the Long Parliame — Seminary. Omitted in 1890–9

20*d*. Studies in the History of England and France, 1775–1800. — Semina 1 Gr. Total

20*e*. Professors CHANNING and HART. — Seminary in American History. 2 hou 8 Gr., 7 Se. Total

20*f*. Dr. SNOW. — Seminary in the History of American Diplomacy. 2 hou 1 Gr. Total

ROMAN LAW.

Mr. SCHOFIELD. — History and Institutes of Justinian, including the Law Inheritance, and Selections from the Institutes of Gaius. 3 hours. 1 Gr., 18 Se., 6 Ju. Total

THE FINE ARTS.

Primarily for Undergraduates: —

1. Mr. MOORE. — Principles of Delineation, Color, and Chiaroscuro. — Lectu (once a week), with collateral reading. — Practice in drawing and in the u of water-colors. — Perspective. 3 hours. 18 Se., 8 Ju., 8 So., 10 Fr., 6 Sp., 7 Sc. Total

2. Mr. MOORE. — Principles of Design in Painting, Sculpture, and Arc tecture. — Lectures (twice a week), with collateral reading. — Practice drawing and water-colors. 3 hours. 7 Se., 6 Ju., 3 So., 1 Fr. Total

For Graduates and Undergraduates: —

3. Professor NORTON. — Ancient Art. 3 hours. 4 Gr., 84 Se., 88 Ju., 50 So., 4 Fr., 23 Sp., 3 Sc. Total 2

[4. Professor NORTON. — Roman and Mediæval Art. 3 hours. Omitted in 1890–9

MUSIC.

Graduates and Undergraduates: —

Professor PAINE. — Harmony. 3 hours.
2 Se., 2 Ju., 3 So., 10 Fr., 1 Sp. Total 18

Professor PAINE. — Counterpoint. 2 hours. 1 Se., 1 Ju., 9 So. Total 11.

Professor PAINE. — History of Music, with analysis of the works of the great masters. Omitted in 1890–91.]

Professor PAINE. — Instrumentation. 1 hour.
1 Gr., 3 Se., 2 Ju., 1 Sp. Total 7.

narily for Graduates: —

Professor PAINE. — Canon and Fugue. 2 hours. 3 Se., 2 Ju. Total 5.

Professor PAINE. — Free Thematic Music. — Fugue in two voices. 2 hours.
Omitted in 1890–91.]

MATHEMATICS.

narily for Undergraduates: —

Professor C. J. WHITE. — Logarithms. — Plane Trigonometry, with its applications to Surveying and Navigation. 3 hours. 1st half-year.
4 Se., 5 Ju., 14 So., 86 Fr., 11 Sp., 12 Sc., 1 Law. Totol 133.

Professor C. J. WHITE. — Analytic Geometry (elementary course). 3 hours. 2d half-year. 4 Se., 6 Ju., 7 So., 66 Fr., 8 Sp., 4 Sc. Total 95.

Mr. BAILEY. — Analytic Geometry (extended course). 3 hours.
1 Gr., 1 Se., 2 Ju., 3 So., 9 Fr., 1 Sp., 1 Sc. Total 18.

Dr. OSGOOD and Messrs. BAILEY and LOVE. — Algebra. 3 hours. 1st half-year. 8 Se., 8 Ju., 12 So., 52 Fr., 16 Sp., 2 Sc. Total 98.

Dr. OSGOOD and Messrs. BAILEY and LOVE. — Solid Geometry. 3 hours. 2d half-year. 11 Se., 7 Ju., 14 So., 47 Fr., 14 Sp., 2 Sc. Total 95.

Professor C. J. WHITE. — Spherical Trigonometry. — Applications of Spherical Trigonometry to Astronomy and Navigation. 2 hours. 1st half-year.
1 Gr., 1 Ju., 5 So., 4 Fr., 3 Sc. Total 14.

Professor C. J. WHITE. — Differential and Integral Calculus (first course). 3 hours. 1 Gr., 2 Se., 3 Ju., 17 So., 1 Fr., 4 Sc. Total 28.

Mr. LOVE. — Analytic Geometry (higher course). 3 hours.
1 Gr., 2 Ju., 4 So. Total 7.

Dr. OSGOOD. — The Elements of Mechanics. 3 hours.
2 Gr., 3 Se., 3 Ju., 4 So., 6 Sc. Total 18.

Graduates and Undergraduates: —

Professor BYERLY. — Differential and Integral Calculus (second course). 3 hours. 4 Gr., 3 Se., 12 Ju., 2 So. Total 21.

Professor C. J. WHITE. — The Theory of Equations. 2 hours. 2d half-year. 3 Gr., 4 Se., 2 Ju., 2 So., 1 Fr. Total 12.

6. Professor J. M. PEIRCE. — Quaternions and Theoretical Mechanics. 3 hours.
Omitted in 1890–91.]

7. Professor J. M. PEIRCE. — Higher Plane Curves. 2 hours.
3 Gr., 1 Se., 1 Ju. Total 5.

14. Dr. Osgood. — Higher Algebra (Quantics). 3 hours.
1 Gr., 2 Se., 2 Ju. Tot

8. Professor Byerly. — Analytic Mechanics. 3 hours.
5 Gr., 1 Se., 2 Ju. Tot

9. Professor J. M. Peirce. — Quaternions and Theoretical Mechanics (se course). 3 hours. 3 Gr., 1 Se. Tot

10. Professor Byerly. — Trigonometric Series. — Introduction to Spher Harmonics. 2 hours. 5 Gr., 1 Se. Tot

13. Professor J. M. Peirce. — The Theory of Functions. 3 hours.
5 Gr., 1 Se. Tot

Primarily for Graduates: —

[11. Professor B. O. Peirce. — Hydrostatics. — Hydrokinematics. — F Functions and Velocity. — Potential Functions and their uses. 3 hours.
Omitted in 1890–

[16. Professor Byerly. — Problems in the Mechanics of Rigid Bodies. 2 ho
Omitted in 1890–

[17. Professor J. M. Peirce. — Analytic Geometry of Three Dimens (advanced course). Omitted in 1890–

15. Professor B. O. Peirce. — Wave Motion. 3 hours. 3 Gr. Tot

18. Professors J. M. Peirce, Byerly, and B. O. Peirce. — Finite Difference Theory of Numbers. — Calculus of Variations. — Least Squares. — Lect by the students. 1 hour. 4 Gr. Tot

[19. Differential Equations (advanced course). Omitted in 1891–

Courses of Research.

20 *b*. Professor Byerly. — Bessel's and Lamé's Functions. 1 Gr. Tot

c. Dr. Osgood. — Higher Algebra (second course). 2 hours. 2 Gr. Tot

ENGINEERING.

Primarily for Undergraduates: —

1. Mr. Wait. — Mechanical Drawing. — Descriptive Geometry. — Tinting, metric Drawing, Shades and Shadows, Perspective. 6 hours.
6 Se., 5 Ju., 5 So., 3 Fr., 14 Sc. Tota

2. Mr. Wait. — Surveying, Plotting, and Topographical Drawing. — Johns Theory and Practice of Surveying. — Geodesy. 6 hours.
1 Gr., 7 Se., 4 Ju., 5 So., 1 Fr., 1 Sp., 5 Sc. Tota

3. Mr. Johnson. — Stereotomy. — Applications of Descriptive Geometry Investigation of Arches. 2 hours. 6 Se., 1 Ju., 5 Sc. Tota

4. Mr. Wait. — Levelling. — Topographical Drawing. — Searle's Field B neering. — Railroad Surveying, Location, and Construction. 6 hours.
1 Se., 5 Sc. Tot

For Graduates and Undergraduates: —

5. Mr. Johnson. — Graphical Statics. — Mechanics of Construction. — Bu ing Materials, and their application to Structures. 6 hours.
4 Se., 1 Ju., 2 Sc. Tot

or CHAPLIN. — Applied Mechanics and Constructive Engineering.
s. 4 Se., 2 Sc. Total 6.

sor CHAPLIN. — Water Supply, and Sanitary Engineering. 3 hours.
f-year. 13 Se., 7 Ju., 6 So., 2 Fr., 5 Sp., 5 Sc. Total 38.

ssor CHAPLIN. — Practical Hydraulics and Hydraulic Engineering.
s. 2d half-year.

sor CHAPLIN. — Designing. — Discussions of existing structures and
ng out of projects. 6 hours. 4 Se., 2 Sc. Total 6.

PHYSICS.

for Undergraduates: —

ssors TROWBRIDGE, B. O. PEIRCE, and HALL. — Introductory Lectures,
ed especially for Freshmen, but open to all members of the University.
r. 2d half-year.

ssor HALL and Mr. HUDSON. — Experimental Physics. — Lectures (once
k) and laboratory work (two hours). 3 hours.
1 Gr., 4 Se., 5 Ju., 17 So,, 27 Fr., 6 Sp., 7 Sc. Total 67.

ABINE and Mr. HOOPER. — Experimental Physics. — Measurements in
anics, Sound, Heat, Light, Electricity, and Magnetism. — Lectures and
atory work (together six hours a week).
3 Se., 4 Ju., 16 So., 21 Fr. 2 Sp., 20 Sc. Total 66.

ssor HALL. — General Descriptive Physics. — Lectures (twice a week)
aboratory work (two hours).
4 Se., 8 Ju., 5 So., 4 Fr., 3 Sp., 10 Sc. Total 34.

ssor B. O. PEIRCE and Mr. RICH. — Electrostatics, Electrokinematics,
parts of Electromagnetism. — Lectures (once a week) and laboratory
(six to eight hours a week). 1 Gr., 1 Se., 3 Ju., 2 So., 2 Sc. Total 9.

ssor TROWBRIDGE. — Electrodynamics, Magnetism, and Electromag-
m. — Lectures (twice a week) and laboratory work (six hours a week).
1 Gr., 2 Se., 4 Ju., 2 So., 5 Sc. Total 14.

ssor TROWBRIDGE. — Light. — A general treatment of Optical Phe-
ena. — Lectures.

ssor B. O. PEIRCE. — Thermodynamics. 2 hours. 1st half-year.
1 Gr., 1 Se., 2 Ju., 1 Sc. Total 5.

essor HALL. — Heat Engines: the theory of their action and the prin-
es of their economical operation, with practice in managing and testing
n. — Lectures and laboratory work (six hours a week). 2d half-year.
1 Gr., 1 Se., 2 Ju., 1 Sc. Total 5.

essor HALL. — Dynamos: the theory of their action and the principles
heir economical operation, with practice in managing and testing them. —
tures and laboratory work (six hours a week). 1st half-year.
1 Se., 2 Ju., 1 Sc. Total 4.

ily for Graduates: —

fessor B. O. PEIRCE. — The Mathematical Theory of Electrostatics and
etrokinematics. Omitted in 1890–91.]

ofessor HALL. — The Mathematical Theory of Electrodynamics and Electro-
gnetism. Omitted in 1890–91.]

COURSE OF RESEARCH.

*20. Professor TROWBRIDGE. — (*a*) Spectrum Analysis. — Laboratory (twelve hours a week). 1 Gr. To

CHEMISTRY.

Primarily for Undergraduates: —

A. Professor COOKE. — Elementary Chemistry (lectures). 1 hour. 1st year. 2 Se., 1 Ju., 5 So., 323 Fr., 37 Sp., 7 Sc. Tota

B. Dr. HUNTINGTON. — Experimental Chemistry. — Lectures and labor work (three, or if taken as a full course, six hours a week).
1 Se., 4 Ju., 9 So., 20 Fr., 14 Sp., 5 Sc. Tot

C. Dr. HUNTINGTON. — 1st half-year: Mineralogy of common rocks, incl a study of the characters and distribution of the mineral species consti ordinary rock. — Second half-year: Metallic Ores, including blow-pipe ing and the simpler methods of furnace assaying of gold and silver or Lectures (three hours a week).
2 Se., 1 Ju., 2 So., 5 Fr., 1 Sp., 1 Sc. Tot

1. Professor JACKSON. — General Descriptive Chemistry, including its ap tions in the arts, and embracing the scheme of the chemical elemen Lectures (twice a week) and laboratory work (four hours).
1 Gr., 18 Se., 19 Ju., 34 So., 20 Fr., 5 Sp., 22 Sc. Tota

2. Dr. HUNTINGTON. — Systematic Mineralogy. — Lectures in the Mi Cabinet (three hours a week) and practical exercises.
3 Gr., 7 Se., 9 Ju., 9 So., 6 Fr., 5 Sp., 11 Sc. Tot

3. Professor H. B. HILL. — Qualitative Analysis (chiefly laboratory work, nine hours a week). 11 Se., 10 Ju., 5 So., 2 Sp., 10 Sc. Tot

4. Professors COOKE and H. B. HILL and Dr. RICHARDS. — Quantitative A sis (chiefly laboratory work, about nine hours a week).
7 Se., 1 Ju., 3 So., 5 Sc. Tot

For Graduates and Undergraduates: —

4*a*. Professors COOKE and H. B. HILL and Dr. RICHARDS. — Quanti Analysis (second course). — Laboratory work.
1 Gr., 3 Se., 1 Ju., 1 Sc. To

5. Professor H. B. HILL. — The Carbon Compounds. — Lectures (three ti week) and laboratory work (three to six hours a week).
2 Gr., 3 Se., 3 Ju., 1 So., 1 Sp., 3 Sc. Tot

Primarily for Graduates: —

6. Professor COOKE. — Advanced Problems in Inorganic Chemistry Chemical Physics, including Molecular Weights and Volumes, The Chemistry, and Specific Refractive Power. — Lectures (three times a w and laboratory work (six hours a week).
4 Gr., 2 Se., 2 Ju., 1 Sp., 1 Sc. Tota

7. Professor COOKE. — Crystallography and the Physics of Crystals. — Lec and Practical Exercises. — Discussion and measurement of crystals. — tal Optics. 1 Gr. Tot

COURSES OF RESEARCH.

(*a*) Professor COOKE. — Determination of Atomic Weights. 2 Gr.
(*b*) Professor JACKSON. — Aromatic Compounds. 1 Gr.
(*c*) Professor H. B. HILL. — Organic Chemistry. 3 Gr.
(*d*) Professor JACKSON. — Inorganic Chemistry. Omitted in 1890–91.]
(*e*) Professor COOKE and Dr. HUNTINGTON. — Mineralogy. 1 Gr.
Total 7.

BOTANY.

marily for Undergraduates : —

Mr. GANONG. — Botany. — Lectures and laboratory practice. 3 hours. 2d half-year. 1 Gr., 17 Se., 18 Ju., 41 So., 49 Fr., 16 Sp., 11 Sc. Total 153.

Professor FARLOW. — Morphology of Plants. — Lectures and laboratory work. 3 hours. 1st half-year.
1 Gr., 10 Se., 5 Ju., 13 So., 2 Fr., 1 Sp., 3 Sc. Total 35.

Graduates and Undergraduates : —

Mr. GANONG. — Botany (second course). — Lectures and laboratory practice. 2 hours. 3 Gr., 3 Se., 3 Ju., 1 So., 1 Fr., 1 Sp., 1 Sc. Total 13.

Professor FARLOW. — Cryptogamic Botany. — Lectures and laboratory work. 3 hours. 2d half-year. 5 Gr., 3 Se., 1 Ju., 2 So., 1 Sc. Total 12.

marily for Graduates : —

COURSES OF RESEARCH.

a. Professor GOODALE. — Experimental Vegetable Physiology. — Systematic and Economic Botany. Omitted in 1890–91.]

Professor FARLOW. — Structure and Development of Cryptogams. — Laboratory work. 7 Gr., 1 Sc. Total 8.

ZOÖLOGY.

marily for Undergraduates : —

Professor MARK. — Zoölogy. — Lectures and laboratory demonstrations. 3 hours. 1st half-year.
2 Gr., 13 Se., 8 Ju., 22 So., 21 Fr., 11 Sp., 12 Sc. Total 89.

Mr. G. H. PARKER. — Morphology of Animals. 3 hours. 2d half-year.
1 Gr., 9 Se., 4 Ju., 12 So., 3 Fr., 1 Sp., 4 Sc. Total 34.

Graduates and Undergraduates : —

Mr. G. H. PARKER. — Comparative Anatomy of Vertebrates. — Lectures and laboratory work. 3 hours. 4 Gr., 7 Se., 6 Ju., 3 Sc. Total 20.

Professor MARK. — Microscopic Anatomy. — Lectures and laboratory work. 3 hours. 1st half-year. 5 Gr., 1 Ju., 3 Sc. Total 9.

Professor MARK. — Embryology of Vertebrates. — Lectures and laboratory work. 3 hours. 2d half-year. 6 Gr., 1 Ju., 2 Sc. Total 9.

rimarily for Graduates : —

). Dr. SLADE. — Comparative Osteology. 1 hour. 2 Se., 1 Ju. Total 3.

COURSES OF RESEARCH.

0*a*. Professor MARK. — Anatomy and Development of Animals.
8 Gr., 1 So. Total 9.

[20*b*. Professor HAGEN. — General Entomology. Omitted in 1890–91.]

GEOLOGY.

Primarily for Undergraduates: —

1. Professor DAVIS. — Meteorology. — Lectures, recitations, written exe and laboratory work. 3 hours. 1st half-year.
21 Se., 13 Ju., 16 So., 21 Fr., 6 Sp., 7 Sc. To

2. Professor DAVIS. — Physical Geography. — Lectures, recitations, exercises, and laboratory work. 3 hours. 2d half-year.
1 Gr., 21 Se., 13 Ju., 19 So., 32 Fr., 11 Sp., 11 Sc. Tot

4. Professor SHALER. — Elementary Geology. — Lectures. — Dana's of Geology. 3 hours.
5 Se., 49 Ju., 52 So., 84 Fr., 18 Sp., 16 Sc. Tot

4*a*. Dr. HARRIS. — Elementary Geology. — Laboratory and field exercise occasional lectures. 4 hours.
2 Gr., 8 Se., 15 Ju., 18 So., 31 Fr., 3 Sp., 14 Sc. To

For Graduates and Undergraduates: —

8. Professors SHALER and DAVIS and Dr. WOLFF. — General Critical Ge — Lectures, field work, and theses. 3 hours.
3 Gr., 8 Se., 6 Ju., 8 So., 3 Fr., 5 Sp., 6 Sc. To

9. Dr. HARRIS. — Structural and Dynamical Geology of the stratified ro Lectures, reading, and theses. 1 hour. 2 Gr., 2 Sc. T

14. Professor SHALER. — Palaeontology. — Lectures, laboratory worl theses. 3 hours. 2 Gr., 4 Se., 1 Ju., 2 Sc. T

22. Dr. WOLFF. — Petrography. — Lectures, laboratory work, and 2 hours. 1 Gr., 2 Se., 3 Sc. T

[18. Professor WHITNEY. — Economical Geology. 4 hours. For half-ye Omitted in 18

Primarily for Graduates: —

15. Professor SHALER. — Historical Geology (with laboratory work). 2

25. Mineral Veins and Metalliferous Deposits: their mode of occurren theories of their origin. 2 hours. 1st half-year.
2 Gr., 12 Se., 2 Ju., 1 So., 6 Sc. To

COURSES OF RESEARCH.

20*a*. Professor DAVIS. — Physical Geography and Meteorology (second c — Lectures and reports. 2 hours. 2 Gr., 1 Ju., 1 So., 2 Sc. T

20*b*. Professors SHALER and DAVIS and Drs. WOLFF and HARRIS. — Ad geological field work; for training in the principles of Geological Sur with original investigation in the field and practice in the prepara reports. 4 Gr., 3 Se., 2 Ju., 4 Sc. T

[20*c*. Professor SHALER. — Palaeontology (second course). Omitted in 18

20*d*. Dr. WOLFF. — Petrography (second course). — Individual researcl field and laboratory. 1 Sc.

e revision of the list of courses preparatory to the announcement
struction for 1891–92 developed but little need for change in the
body of the courses, or in the classification of them which had
adopted recently. The appointment of Assistant Professor
made it possible to offer a course on the History of Classical
ing in Europe from the Fifth Century to the Fifteenth, exhibiting
elation of modern to ancient culture; and another course on
arative European Literature in the Middle Ages, with special
nce to France and her influence. The addition of Mr. Edward
ings to the Department of Political Economy gave opportunity
e establishment of a course, to be conducted by him, upon Soci-
and the Development of the Social Functions of the Modern
Professor Emerton's courses on the First Eight Christian
ries and on the Era of the Reformation were restored to the
courses in History, and a course to be given by him on the
le Ages, from Charlemagne to Dante, was established. The
ty also authorized a course of special training in American
eology and Ethnology to be given by Professor Putnam, to re-
three years for its completion and to be carried on by work in
eabody Museum together with lectures and field work, and in
ird year to include some special investigation. The increased
st in archaeological study and the liberal aid which has been
for the encouragement of students has finally made it possible
e the Museum and its rich collections in the training of qualified
nts for original research, and thus to multiply the usefulness of
noble foundation. The course now established, being a long
n of training and not the examination of a definite and limited
on of a field of study, such as is implied in our customary use of
rm, is set down to be taken by graduates and may be made the
d for conferring the higher degrees administered by this Faculty.
tention should also be called to other new courses, established
e year 1891–92, as follows: —

Lory of Latin Literature. *Three hours.* Professor SMITH.
eral Introduction to Classical Philology. *Three hours, first half-year.*
structors in the Classical Department.
erary Criticism in England since the Sixteenth Century. *One hour.* Mr.
CHER.
rman Prose (advanced course). Subjects in history, literature, and philos-
Two hours. Professor SCHILLING.
e Faust Legend from Marlowe to Goethe. *One hour.* Professor FRANCKE.
emical Philosophy. *One hour.* Dr. RICHARDS.

hile the Faculty was engaged in preparing the list of courses of
uction to be provided for the year 1891–92, it found itself called
to consider the conditions under which courses given during the

Summer vacation might be counted towards the degrees of A.B. S.B. Such courses have been given for several years and have so times had a large attendance, especially in Chemistry, Phys Botany, Geology, and Physical Training. Originally undertaken meet the special wants of teachers and of other persons outside the University, these courses have been carried on under the charg a committee appointed by the President and Fellows — in most ca although not always, by members of the regular teaching force, still in no way under the responsibility or jurisdiction of either of Faculties. Their proved usefulness has demonstrated the value such concentrated study as was required of those pursuing them, as time has gone on they have attracted an increasing proportion students of the University. The College Faculty more than o consented to recognize work done in some of these courses as w to be counted for the degree of A.B., but was reasonably unwil to commit itself far in the direction of counting work not done un its control, or under the other safeguards which guarantee cou publicly given in term-time. The need of some systematic provi as to the use of these courses by undergraduates continued to be however, and the Faculty, therefore, after full consideration de mined to admit to its list, among the courses to be counted for Bachelor's degrees, Summer courses proposed under the responsibi of the proper departments and formally approved by the Facu when carried on under the supervision of some regularly appoin officer of instruction, with proper tests of the systematic applica and proficiency of the students and with a final examination in form not later than October 1. The further condition was impo that not more than two Summer courses, counted as the equivalen half-courses, should be taken in any one year. Under these co tions seven Summer courses were proposed and approved — on German, two in Engineering, one in Physics, one in Botany, and in Geology, together with one in Geological Field-work, to be cou as a full or as a half-course, according to the length of time for wh it is followed.

Several Summer courses outside of this list were given as us without complying with these conditions, and, therefore, without privilege of counting for the degree, the departments concerned fi ing that the character of the courses or the uses to which they w mainly adapted did not make it worth while to bring them within rules laid down by the Faculty. Such courses will no doubt conti to serve the same excellent purposes as heretofore, extending s important benefits of the University equipment and methods teachers and others who could not otherwise have access to th The courses placed under the Faculty's rules and therefore to

ed for the degree will have the signal advantage, considered as ar courses of instruction, of enabling students to carry on im- nt work, especially in the Natural Sciences and in Engineering, e best season of the year, and with such freedom in the choice of as is impossible for either student or instructor in the ordinary ng year of the University.

e general scheme of the courses adopted by the Faculty calls in cases for about six weeks of daily attendance, with a large nt of laboratory or field work, and the value of the work, as has been shown, is much heightened by the interest and animation o concentrated daily attention to only one or two subjects. It to be assumed that the students would find equal profit from ethod in all subjects. Upon many studies it is no doubt diffi- o secure a firm hold without a certain time for reflection and for al assimilation, and some caution may be needed, then, in ex- g this arrangement to untried branches of work. So far as it e carried safely, it promises to secure increased use for a part of luable scientific equipment and libraries of the University dur- part of the year when the old division between term and vaca- ould keep them idle; and it also gives to the students the al use, to a limited extent, of the long vacation. This fraction year has long been felt to be too important to be neglected, but fferent needs of individuals, as well as the habits of a large part community, have stood in the way of any method of dealing t so far proposed. The result of the present experiment of ng earnest students in vigorous health to use, if they will, a of the leisure time of the year in such studies as can then rsued with the best advantage, must be observed with great st.

e Faculty also by special vote recognized the following labora- ourses, given in the Medical School for graduate students in ine, as suitable for students in the Graduate School: —

erimental Physiology, by Dr. Bowditch.
tomy, by Dr. Dwight.
teriology (a Summer course), by Dr. Ernst.
ryology of Vertebrates, by Dr. S. C. Minot.

e bearing of these courses upon work carried on by some of the ate students in Biology led the Faculty in this instance to make usual exception to its general practice with respect to work in nd Medicine, and the exception was more easily made because case of graduate students the practical difficulties in the way mitting for a degree work not done under the jurisdiction of the ty itself are obviously far less serious than in the case of under- ates.

CHARLES F. DUNBAR, *Dean*.

THE COLLEGE.

To the President of the University:

Sir, — I have the honor to present to you a report on the adm istration of the College during the academic year 1890–91

The number of students at the beginning of the year was thirt hundred and forty-one: —

Seniors	289
Juniors	254
Sophomores	290
Freshmen	367
Total number of undergraduates	1200
Special Students	141
Total	1341

These figures show a gain of sixty-nine over the preceding year

	Gain.	Loss.
Seniors	10	..
Juniors	10	..
Sophomores	8	..
Freshmen	43	..
Special Students	..	2
Total gain	71	
Total loss	2	
Net gain	69	

The large gain in the Freshman class is explained in part by failure of thirty-nine Freshmen of the preceding year to meet College requirements, and the consequent reappearance of many them as Freshmen.

The candidates for the degree of A.B. in 1891 were three hund and four, of whom six were registered as Graduates, one as L Student, one as Medical Student, four as Juniors, and one as Spe Student. Fifteen Seniors and one Junior failed to receive the degr yet the total number of degrees conferred was unusually large: —

	1886.	1887.	1888.	1889.	1890.	18
Graduated	221	225	221	204	275	2
Failed	4	7	7	4	4	

Outside of the Senior class of 1890–91, the losses and the gain the number of undergraduates between October, 1890, and Octo 1891, may be seen from the following table: —

	October, 1890.	Loss.	Gain.	October, 1891.
Class of 1892 . .	(Juniors) 254	25	52	(Seniors) 281
Class of 1893 . .	(Sophomores) 290	39	50	(Juniors) 301
Class of 1894 . .	(Freshmen) 367	70	36	(Sophomores) 333
		134	138	
Net gain in the three classes between October, 1890, and October, 1891 . . 4				

The next table is a detailed statement of the losses and the gains in these three classes: —

	Class of 1892.	Class of 1893.	Class of 1894.	Total for three Classes.
LOSSES.				
Left College before the end of the year . .	7	8	13	28
Left College at the end of the year	7	9	7	23
Were "dropped" and left College	2	1	3	6
Entered a lower class	3	6	25	34
Entered a higher class	6	15	22	43
Total loss	25	39	70	134
GAINS.				
From higher classes	3	3	6	12
From lower classes	14	23	. .	37
Newly admitted	35	24	30	89
Total gain	52	50	36	138
Net loss	. .	. .	34	. .
Net gain	27	11	. .	4

Death accounts for the loss of one Junior and one Freshman; College discipline for the loss of one Junior, four Sophomores, and six Freshmen. Of the students removed to higher classes two entered the Medical School and two the Law School, with the intention of taking the degree of A.B. in 1892; twenty-five were restored to their original classes, from which they had been "dropped." Of the newly admitted, sixty-two were admitted by the Committee on Admission from Other Colleges — thirty-one as Seniors (Class of 1892), twenty as Juniors, and eleven as Sophomores. Three Special Students and one Scientific Student were admitted to the Senior class; four Special Students to the Junior; twelve Special Students and three Scientific Students to the Sophomore. Four of the newly admitted Sophomores

took the examinations for admission to the Freshman class in 1
and enough examinations beside to cover the greater part of
work of the Freshman year.

The most important statistics in regard to the new Freshman c
are found in the following table: —

Admitted by examination in 1891	322
before 1891	19
from other colleges	11
from a higher class	25
from the Special Students	3
from the Lawrence Scientific School	1
Total	381

The next table shows the losses and the gains in the numbe
Special Students between October, 1890, and October, 1891: —

In attendance, October, 1890	141
Left College before the end of the year	15
Left College at the end of the year	44
Entered a College class	22
Took the degree of A.B. in 1891	1
Total loss	82
Returned to College, October, 1891	58
Newly admitted	104
In attendance, October, 1891	162
Net gain	21

The gain in the number of Special Students is the more notewo
because the committee in charge of Special Students grows stri
and stricter in deciding whom to admit, as well as in deciding wha
demand of men already admitted.

A combination of the foregoing tables shows a net gain of
hundred and seventeen students between October, 1890, and Octo
1891.

Four students died before the summer vacation; but nothing in
condition of the College last winter accounts for so large a nun
of deaths. One Senior and one Junior died of peritonitis;
Freshman, of pneumonia; one Special Student was drowned.

Before discussing the examinations for admission, I must men
the person who knows most about them. Miss Charlotte M. Ha
after nineteen years at the Office in University Hall, left the ser
of the College in September, 1891. The daughter of James W. Ha
late Secretary of the College, she became, in 1872, her father's as
ant. During the remainder of Mr. Harris's life, and after his de
she held a position as responsible as it was burdensome. At all t
the Dean relied on her remarkable accuracy and her unique knowl

office business. No one has served the College with a conscience vigilant or an unselfishness more devoted. At the first meeting e Faculty of Arts and Sciences after the resignation of Miss s, Professor Norton offered the following resolution, which was mously adopted: —

hat the Faculty of Arts and Sciences desire to put on record sense of the value of the long and faithful services of Miss otte M. Harris."

ır hundred and three candidates (twelve more than in 1890) Final Examinations for admission to College in 1891. Of these, ındred and sixty-eight had taken Preliminary Examinations in eding year; eighty-nine (thirty-two more than in 1890) divided aminations between June and September; and forty-six took ir examinations in either June or September. The number of lates who adopted each of the four plans of admission may be d from the following table: —

a): All the Elementary Studies and at least two Advanced Studies; ifteen * hours of examination	161
b): All the Elementary Studies except either German or French, and at least three Advanced Studies; sixteen hours of examination	211
c): All the Elementary Studies except either Greek or Latin, and at least four Advanced Studies, including Advanced Mathematics; seventeen hours of examination	27
d): All the Elementary Studies except either German or French and either Greek or Latin, and at least five Advanced Studies, including Advanced Mathematics; eighteen hours of examination	4
	403

every departure from Plan (*a*) the candidate pays double: if he the one hour of examination in Elementary German or French, stitutes two hours of examination in some advanced study; if he the two hours of examination in Elementary Greek or Latin, he tutes four hours of examination. Moreover, one of the substi- for Greek or Latin must be Advanced Mathematics, and the either Advanced Mathematics or Advanced Physical Science. w of these facts, it is not surprising that few candidates elect Plan (*c*) or Plan (*d*). The most potent cause of such an elec- s either dread of Greek or inability to get instruction in Greek. e four plans of admission, Plan (*b*) is still the most popular; is year Plan (*a*) has gained a little at the expense of Plan (*b*). ong alternative requirements, German is gaining on French, Experimental Physics on Descriptive. The relative popularity ıcient and Modern History remains unchanged.

he examination in English (required of every candidate) occupies an hour half, but counts for one hour only.

Among the Advanced Studies, Latin still leads, with three hun and sixty-two candidates, or over eighty-nine per cent; Greek co next, with two hundred and seventy-seven; and Advanced Phy is still last, with five, of whom four failed. Ambitious and able didates continue to offer a greater number of Advanced Studies the College demands. The relative position of the Advanced Stu may be seen in the following table: —

	1889.		1890.		1891.	
Number of candidates . . .	327	Per cent.	374	Per cent.	408	Per ce
No. offering Greek	243	74	262	70	277	68
" " Latin	305	93	334	89	362	89
" " Greek Comp. .	188	57	190	51	214	53
" " Latin " .	200	61	217	58	268	66
" " German . . .	43	13	49	13	77	19
" " French	84	26	88	24	92	22
" " Logarithms and Trigonometry	54	17	75	20	86	21
" " Solid Geometry	61	19	91	24	100	25
" " Anal. Geometry	15	5	16	4	18	4
" " Mechanics or Adv. Algebra; in 1891 Adv. Algebra only	10	3	22	6	27	6
" " Physics . . .	1	0.3	9	2	5	1
" " Chemistry . .	27	8	41	11	41	10

If these studies are ranked according to the number of candid that they attract, the result is, —

	1889.	1890.	1891.
1.	Latin.	Latin.	Latin.
2.	Greek.	Greek.	Greek.
3.	Latin Composition.	Latin Composition.	Latin Compositio
4.	Greek Composition.	Greek Composition.	Greek Compositi
5.	French.	Solid Geometry.	Solid Geometry.
6.	Solid Geometry.	French.	French.
7.	Logarithms & Trigon.	Logarithms & Trigon.	Logarithms & Tr
8.	German.	German.	German.
9.	Chemistry.	Chemistry.	Chemistry.
10.	Analytic Geometry.	Mechanics or Adv. Alg.	Advanced Algebr
11.	Mechanics or Adv. Alg.	Analytic Geometry.	Analytic Geomet
12.	Physics.	Physics.	Physics.

The most striking thing in these tables is the stability that show in the relative position of Advanced Studies. In 1890 S Geometry passes French in the rank-list, and Mechanics or Advan Algebra passes Analytic Geometry; in 1891 the order is preci

me as in 1890. It is worth noting, also, that the number of can-
s in Advanced Greek increases; and that in both Latin and
Composition even the percentage is larger for 1891 than for

next table gives the percentage of failure in each of the studies
l at the examinations for admission: —

	1888.	1889.	1890.	1891.
ELEMENTARY STUDIES.				
lish	15	17	12	14
k	3	6	9	6
n	3	5	3	2
nan	10	11	12	13
ch	14	12	11	11
ory (Ancient)	5	7	6	11
(Modern)	3	13	18	10
bra	22	28	11½	10
e Geometry	21	13	17	17
ical Science (Descriptive)	16	15	23	25
ics (Experimental)	15	14	14	9
ADVANCED STUDIES.				
k	19	20	10	8
n	9	17	27	24
k Composition	16	12	17	23
n "	26	17	23	23
nan	21	17	18	31
ch	23	23	24	20½
rithms and Trigonometry	71	32	40	33½
l Geometry	19	23	31	16
ytic Geometry	33	33	37½	22
hanics or Advanced Algebra*	73	64	45½	37
sics	22	100	11	80
mistry	5	0	0	7

will be borne in mind that these figures tell merely what per cent
candidates who have offered this or that study at either the
inary or the Final Examinations have failed in it at the Final;
nat, for the purposes of this table, the record of the Preliminary
inations is a record of solid success. Thus the percentage of
e in studies which, like Elementary Greek and Latin, are usually
d at the Preliminary Examinations becomes conspicuously small.
88, for example, though twenty-four per cent of the Preliminary
idates in Elementary Greek were conditioned and seven per cent

* In 1891, Advanced Algebra only.

of the Final candidates, the percentage of failure appears as thr
for no one who had disposed of Elementary Greek at the Prelimin
Examinations presented it at the Final; and seven per cent of th
who presented it at the Final Examinations is but three per cent
the whole number of candidates examined in Elementary Greek.

Another table shows the general results of the examinations fr
the time when the College abandoned the "Old Method": —

	1888.	1889.	1890.	189
Candidates	315	327	374	40
Admitted	301	305	348	37
" clear	125	114	145	16
Rejected	14	22	26	2
Per cent rejected	4.4	7.	7.	6.

In 1891, for the first time, examinations for admission were h
in Japan.

Four hundred and twenty-eight candidates (fifty-two more than
1890) took Preliminary Examinations. The result of these exami
tions, from the time when the College abandoned the "Old Metho
appears in the following table: —

Number of candidates who received certificates for examinations occupying	1888.	1889.	1890.	189
Less than five hours	..	4	5	1
Five hours	34	49	51	4
Six "	53	63	59	5
Seven "	68	54	76	8
Eight "	60	79	80	6
Nine "	24	16	29	4
Ten "	12	11	8	1
Eleven "	1	5	6	
Twelve "	2	3	..	
Thirteen "	2	1	3	.
Fourteen "	..	..	2	.
Fifteen "	..	..	1	.
Sixteen "	..	..	..	.
Seventeen"	..	..	..	
Received certificates	256	285	320	32
Failed	97	67	56	10
Total number of candidates	353	352	376	42

1891, though the number of certificates for less than five hours
nusually large, the number of failures was nearly double what
in 1890. If the proportion of failures in 1888 had not been
yet, the figures would seem to indicate a waning sensitiveness
science in some of the teachers who give their pupils certificates
paration.

report on admission is complete without some account of the
of the Committee on Admission from Other Colleges. To this
ittee the Faculty has delegated with full power the admission
ut examination, or with only partial examination, of the many
nts attracted every year from other colleges to our own. The
ication of these students depends in part on the standing of the
es from which they come, in part on their standing in those
es. Many Bachelors of Arts — some of whom might enter our
ate School — are admitted to the Senior class, many to the
class: and undergraduates of other colleges are distributed
our classes, each man getting from the committee his special
of admission. No better way of dealing with this important
f students has yet been devised; and, in spite of obvious risks,
sult of this method of admission has proved the wisdom both of
thod and of the committee. In 1891 the number of recruits
ed by this committee was seventy-three.

n students have, as a rule, no serious difficulty in discovering
ollege courses they are qualified to pursue. Not so the Special
nts. They too are admitted with incomplete examination; and
ork under the constant supervision of the committee that ad-
nem. This committee does its best to improve the quality of
ecial Students without denying to any industrious man admis-
such College courses as he may take with profit. Yet many
Students mean in time to work their way into regular stand-
nd for this reason, if for no other, ask admission to the courses
bed for Freshmen. One of these courses, "English *A*," is de-
for students who have had a good deal of training in the sub-
nd have shown, by examination, their fitness for the course.
ot, and should not be, designed for those who, like many of
ecial Students, have passed no examination in English and
ad little or no training in English Composition. To debar such
om the most elementary course that the College offers in the
f their mother-tongue, is ungracious; yet they are not fit for
ching that legitimate members of the course demand. Their
work claims more than a fair share of the instructors' time;
il in their examinations; they are a disappointment to them

selves and a clog to their fellows. In spite of all this, they ma
so industrious that the process of getting rid of them is embarrass
and even heartless. There is no escape from the conclusion that t
men should not be admitted to a course already too crowded
efficient teaching. The same is true of Freshmen who have faile
the admission examination in English; since to prescribe for a
a course for which he has just proved himself unfit is no less illo
than to admit to it a man whose fitness has not been tested.

In all such cases, the remedy seems to be the postponemen
Freshman English till the second year. In the first year, the
should prepare themselves for the admission examination. To es
lish a College class for them would be a movement in the wrong di
tion, since the College wishes the preparatory schools to do more
and not less. Some competent private tutor, however, might
among them enough pupils to form a large class; might thus take
pupil at a moderate price; and might be of great service both to
class and to the College. Moreover, since the English prescribe
College covers only three of the four undergraduate years, postp
ment of Freshman English does not involve postponement of
bachelor's degree.

The reasonable attitude of our students toward College disci
was shown last year, more clearly than ever, in the celebration
great athletic victory won in the face of many obstacles and after m
defeats. Never have the good sense and the self-restraint of Har
students been put to a severer test.

In the course of the year, one Senior was suspended for drun
ness; the probation of one Senior, one Junior, four Sophomores,
five Freshmen was closed; and one Freshman was dismissed
dishonesty.

Thirty-two students suffered the penalty of "exclusion." Acc
ing to Regulation 12, "Any instructor, with the approval of the D
may at any time exclude from his course any student who in
judgment has neglected the work of the course. Such exclu
shall be reported to the Administrative Board at its next meeting

"Any student who has been excluded from one or more cou
may be required to place himself under the direction of a pe
approved by the Dean."

No other regulation leads to such diversity of practice. In 1890
the penalty of exclusion was used in sixteen courses only. The g
est number of exclusions (five) fell to English *B* (Sophomore
scribed Themes); the next greatest (four) to the elective co
Greek *C* and German *C*. Thirty-two exclusions of College stud

wo exclusions of Scientific students, make up the record of the

formity of practice in the use of this penalty is much to be d. At present, every instructor puts his own interpretation on le of the Faculty; and the delicate job of mutual adjustment to the Dean. In my opinion, the penalty should be employed arely. It has the radical defect of giving to a student who y does little the opportunity to do less. The fear of it is ating; but the penalty itself, like hanging, is most helpful to en on whom it is not inflicted. No doubt a student excluded one course may be made to feel that, unless his work in other s promptly improves, he shall be put on probation; moreover, st take, at some time, besides his regular work, the equivalent course from which he has been excluded; but, for the time his work is nominally diminished. For this reason, an instructor do well not to resort to exclusion except with students whose is hopeless, and whose presence in the course — or absence — is demoralizing.

year 1890–91 was the first year of the existence of the Admin-e Board of Harvard College. This large executive committee Faculty of Arts and Sciences consists of fifteen members s the chairman, the Dean of Harvard College. The members 90–91 were: —

IENT L. SMITH, LL.D., *Professor of Latin*, Dean.
RLES E. NORTON, LITT.D., LL.D., *Professor of the History of Art.*
RLES J. WHITE, A.M., *Professor of Mathematics.*
RGE H. PALMER, A.M., *Professor of Philosophy.*
I TROWBRIDGE, S.D., *Professor of Physics.*
RGE A. BARTLETT, *Assistant Professor of German.*
LIAM M. DAVIS, M.E., *Professor of Physical Geography.*
LIAM E. BYERLY, PH.D., *Professor of Mathematics.*
RLES R. LANMAN, PH.D., *Professor of Sanskrit.*
LPHE COHN, LL.B., A.M., *Assistant Professor of French.*
S M. MACVANE, A.B., *Professor of History.*
EMAN SNOW, PH.D., *Instructor in International Law.*
N H. WRIGHT, A.M., *Professor of Greek.*
TER W. HUNTINGTON, PH.D., *Instructor in Mineralogy and Chemistry.*
RIS H. MORGAN, PH.D., *Tutor in Greek.*
RGE L. KITTREDGE, A.B., *Assistant Professor of English.*

delegation of power to the Administrative Board came none on. The Faculty, too big to handle little things, wasted an scionable amount of time in vain attempts to handle them. By charge of the details of College government, the Board left the y free to discuss those larger questions that rightfully belong to

it. Yet relief to the Faculty was a burden to the Board. Y
by year, as our organization improves, more and more of the w
once done clumsily by the Faculty of Harvard College is deleg
to committees; but, since the growth of the University and
increasing thoroughness of its administration keep up the dem
on the time of the Faculty, the work of the committees seems a c
increase of labor. Nearly every member of the Faculty is al
member of more than one hard-worked committee. The busi
must be done, and may be done best by instructors; but from
amount and complexity, especially at the beginning of the Col
year, it bids fair to annihilate that repose without which study, in
high sense, is impossible. It drains a teacher's strength in
first week, and forces him, when his energy should be freshest, to
to the class-room with a mind full of subjects other than his teach
Instead of the enthusiast that he should be, he seems too ofte
jaded scholar struggling, against nature, to transform himself int
man of business.

In spite of these disadvantages, common to all committees,
Administrative Board has more than justified its existence. Incl
ing among its members the Chairman of the Board of Advisers
Freshmen, the Chairman of the Committee on Special Students,
a member of the Committee on Athletics, it comes into contact w
those bodies of students that need closest watching. Though not
large to discuss competently matters of detail, it is large enough
represent every important interest of College life.

At first the Board did not know the limits of its functions, and
its way with care. It acted on cases of "dropped" students w
petitioned to be restored, and on cases of students who by extra w
at admission and extra work in College had advanced to the po
bility of reducing the four College years to three, or of dividing
fourth year between the College and a professional school; it gran
or refused petitions for leave of absence. Any subject which
Faculty might naturally put into the hands of a large committee w
full power, the Administrative Board accepted as its own; any bu
ness concerning which the Faculty had declared a general polic
administered in detail.

In regard to authority in cases of discipline, the Board had li
instruction. Probation, a penalty commonly proposed by the D
of Harvard College, was its natural property; and relief from pro
tion was in its hands: but the closing of probation and the con
quent separation of a student from the College was too serious
responsibility to assume without special permission. According
on October 13, 1890, it was voted to ask the Faculty whether

closing probation had been delegated to the Board. Ten
r the Board received the following answer: —

d, on the motion of the Dean of Harvard College, to delegate
powers, until further order of this Faculty, to the Adminis-
oards of the Graduate School, the College, and the Scientific
espectively, the enforcement of the regulations of the Faculty
to each of those departments, and the conduct of all ordinary
of regulation and discipline.
d, that this Faculty delegate to each of the Administrative
he power to close the probation of any student of the depart-
der its charge, who is now on probation or who may hereafter
n probation by vote of that Board, or under the operation of
lations; provided, however, that such action shall be taken
a vote of two thirds of the members of such Board present
ng.
d, also, that the name of any student whose probation has
sed under the foregoing vote shall be reported to the Faculty
xt meeting."

the Board gained control of ordinary discipline and of one
enalties that cut off a student from the College. Another
penalties, suspension, came into its hands, as a natural con-
of the power to close probation, since suspension involves
imited separation from the College. The closing of pro-
s practically dismissal: a student whose probation has
sed may be readmitted, but only by special vote; the same
f a student dismissed. In either case, the burden of proof
question of readmission rests on the man himself; he
ow himself worthy of the confidence or the mercy of that
g body to which he appeals. Dismissal, however, and the
reaching and irrevocable penalty — expulsion — are still in
ls of the Faculty. Expulsion, which cuts a student off, for
not only from Harvard College but from other colleges hold-
teous relations with it, should be inflicted by the largest of the
g boards; and dismissal should be left to the same body for
t grave enough to justify expulsion.
resent relation of the Board to the Faculty in matters of dis-
s expressed by a vote of the Faculty, read to the Board on
er 5, 1890: —

iesday, November 25, 1890, the Faculty of Arts and Sciences
he following regulation, which is respectfully communicated
dministrative Board of Harvard College.
es of discipline shall be acted upon by the Administrative
of the Graduate School, Harvard College, and the Lawrence
c School, respectively; and their action shall be final, except
cases as in their judgment should be punished by expulsion

or dismissal, which shall be referred by them to the Faculty no student shall be suspended by any administrative board the concurrence of two thirds of all the members of that board

"All cases in which any student is separated from the Univ whether temporarily or permanently, shall be reported to the F at its next meeting."

On December 16, 1890, the Faculty of Arts and Sciences vo

"That the names of all students admitted to the Graduate S Harvard College, and the Lawrence Scientific School be entere the records of the Administrative Boards of those schools respe and not upon the records of this Faculty."

In accordance with this vote, the Board recorded the na students regularly admitted to the Freshman class, of stude mitted from other colleges, and of Special Students.

By examining the records of candidates for the bachelor's sifting the deserving cases from the undeserving, and makin report to the Faculty, the Board completed its work for the ye

An amendment to the College Regulations, adopted by the F May 26, 1891, has an important bearing on the question of years' course, and causes some embarrassment in the Board. regulations for "Anticipation of College Studies" are as follo

ANTICIPATION OF COLLEGE STUDIES.

14. Students are allowed to anticipate any of the prescribed of the Freshman year or any of the elective studies open to Fre by passing a creditable examination in them at the beginning year; and in place thereof to substitute any elective courses they may be qualified to pursue.

15. A student who, besides passing a creditable examinat admission to the Freshman class, has anticipated Freshman s may, if he see fit, count them towards his degree in either following ways: —

(1) He may obtain permission to reduce, by the amount studies anticipated, the number of courses regularly required Senior year, or in the Senior and the Junior years, provid the reduction shall not exceed one full course in either year. permission will be granted, however, only for the purpose of e him to devote the time thus gained to his remaining studies.

(2) If he has anticipated studies amounting to a substanti tion of the work of the Freshman year, and desires to fu requirements for the degree in three years, he may apply Faculty for leave so to do, specifying in his application the in which he proposes to arrange his studies for that purpose Faculty will decide on such applications according to the stances of each case.

these the Faculty substituted, —

AMENDMENT TO THE REGULATIONS

Adopted May 26, 1891, to be substituted for §§ 14 and 15.

A student is allowed to anticipate college studies, by passing, time of his admission, a creditable examination in any of the s intended primarily for undergraduates.

Studies anticipated in accordance with § 14 may be counted ls the degree in the manner herein provided: —

If the studies anticipated amount to one half of the work of the nan year, the student may, upon application, be admitted to the more class, subject to the condition of making up the deficiency Freshman year studies, in accordance with § 6.

In any case the studies anticipated shall be placed to the t's credit, and may be used towards satisfying the requirements degree of Bachelor of Arts, in either of the following ways: —

The student may obtain leave from the Administrative Board l the requirements for the degree in three years by taking ad- l elective studies under the provisions of § 5.

The number of courses regularly required in the Senior year, he Senior and Junior years, may be reduced by the amount of udies anticipated. Permission to make such reduction will be d, however, only for the purpose of enabling the student to time thus gained to his remaining studies, or to studies in a sional school.

lications under (*a*) and (*b*) will not ordinarily be acted upon ne close of the student's first year; and the decision upon them pend upon the quality of the student's record both in his exam- for admission and in his college work.

Amendment differs from the old regulations: —

t, in allowing a student to anticipate at the time of his admis- ot merely Freshman studies but any studies intended primarily dergraduates.

ondly, in emphasizing the possibility of his gaining a year at tset.

dly, in suggesting that, through the aid of studies anticipated, y divide his fourth year between the College and one of the sional schools.

rthly, in promising that "in any case the studies anticipated e placed to the student's credit" — a promise that means little the studies are counted as part of the requirements for the or's degree.

egard to what I have called the fourth point of difference, it e said that the old regulation gives a student the right to count ated studies toward his degree in either of two ways, "if he ." Yet the old regulation proceeds to make clear that, if he count them in the more important of the two ways, it is not

he that shall "see fit" but the Faculty. The new regulation, on other hand, makes a distinct promise that "the courses shall placed to the student's credit": and since, by Regulation 5, student whose record of work performed is complete at the begin of any year" may take five or six courses a year, and since, by same regulation, no one of the five or six courses is less a part of regular work than another, the new Regulation 15, when combi with Regulation 5, encourages the student to hope for a degree at end of three years. Permission to count toward the degree the v of certain Summer courses encourages him further. Moreover, e if he has anticipated no College study, and taken no Summer cou he is encouraged by Regulation 5 alone; for though language that in the last paragraph of the Amendment may check his hopes save the Faculty from committing itself, it is difficult for the Fac logically to maintain that a man of mediocre standing who has ta six courses a year for three years is not entitled to the degree whi grants without hesitation to a man of less than mediocre stan who has taken four and a half courses a year for four. With plexities like these the Faculty is now struggling; and the Boar awaiting instruction.

LE BARON R. BRIGGS, *Dea*

DECEMBER, 1891.

THE LAWRENCE SCIENTIFIC SCHOOL.

TO THE PRESIDENT OF THE UNIVERSITY:

SIR, — The following report of the Lawrence Scientific Schoo the year 1890–91 is respectfully submitted: —

The whole number of students connected with the School ninety, of whom thirty-five were regular students. Two stud received the degree of Bachelor of Science at Commencement. steady increase in the number of students, from fifteen in 1885–8 ninety in the year 1890–91 — the largest number ever entered on books of the School in one year — gives every hope that the Sc will take its place as one of the important and successful branch the University.

The course in astronomy, for which the need has been show former reports, has now been established. The work for the 1891–92 will be limited to instruction in practical field astronomy; it is expected that in the near future the teaching may be extende descriptive astronomy, that students from the College may be adm to both these courses on the same conditions as those impose

ts of this School, and that the work in this subject may be
d to their credit.

instruction in the use of tools is still given at the Cambridge
l Training School, where our students receive every possi-
tention and consideration from the efficient superintendent,
arry Ellis. Until such time as the number of students who are
d to take this instruction becomes too large to be accommodated
Manual Training School, this arrangement is probably the most
ent for the School; but I must again point out that the School
easing in numbers so rapidly that provision must soon be made
ing this instruction inside our walls.

need of a workshop for electrical engineering has been most
recognized and met by a gift of $10,000 from Mrs. Benjamin
ch. With this sum it is expected that a substantial and con-
t shop will be built and equipped, sufficient to supply the
t requirements. It has been so planned that it can be extended
future as may be necessary.

time, perhaps, to make some remarks on the new organization
was introduced a year ago, by which the School was placed
the control of an Administrative Board, which is itself subordi-
o the Faculty of Arts and Sciences. The Administrative Board
School has worked most harmoniously, and the regular attend-
f its members at the meetings has been in marked contrast
e attendance of the Faculty which controlled the School before
organization. So far, then, as can be judged from the experi-
this School, I regard the present organization as an improve-
n the one which it replaced.

system of prescribed group-courses, which is the system fol-
in this School, is defensible only when the number of courses
reat as to fairly meet the needs of the public. It will be good
, therefore, to multiply the courses as rapidly as circumstances
low. At present the courses are those of Civil Engineering,
stry, Geology, Biology, and Electrical Engineering. It is hoped
course in Anatomy, Physiology, and Physical training will be
in 1892–93. The courses which would naturally be the next to
tablished are Architecture and Mechanical Engineering. Of
two courses, that in Architecture could be established at com-
vely small cost, while that in Mechanical Engineering will re-
a large expenditure.

W. S. CHAPLIN, *Dean.*

IBRIDGE, 30 September, 1891.

THE GRADUATE SCHOOL.

To the President of the University:

Sir, — I have the honor of presenting my report on the stat
the Graduate School for the academic year 1890–91.

The number of students registered and actually carrying on stu
in the School, in any part of the year, was one hundred and thi
two, of whom one hundred and seventeen were classed as resi
students, and fifteen (including eleven holders of fellowships) as
resident students. The following table shows the amount and na
of the studies pursued and the proportion among the student
graduates and non-graduates of this University: —

Resident students doing full work in the School for the whole academic year	62
Resident students not doing full work, or not working for the whole year as resident students	55
Non-Resident students holding fellowships	11
Non-Resident students not holding fellowships	4
Students pursuing their principal studies in the Semitic Languages and History	
In Classical Philology	1
In Modern Languages	1
In Philosophy	1
In History and Political Science	1
In Music	
In Mathematics	1
In Physics	
In Chemistry	1
In Natural History	2
In American Archaeology and Ethnology	
Unclassed students	
First-year students	
Second-year students	5
Third-year students	
Fourth-year students	
Students in a fifth or later year	
A.B.'s and S.B.'s of Harvard University, and of no other institution	
A.B.'s and S.B.'s (and holders of similar degrees) of other institutions and also of Harvard University	
Students not holding the Harvard degree of A.B. or S.B.	
Students holding the Harvard degree of A.M., Ph.D., or S.D.	
Students holding the Harvard degree of A.B. or S.B., but not of A.M., Ph.D., or S.D.	
Students holding no Harvard degree in Arts, Philosophy, or Science	

n addition to the students registered in the Graduate School, the alogue for 1890–91 contains the names of thirty-one bachelors or sters of arts, science, letters, or philosophy, in the Senior Class of rvard College, four in the Junior Class, and one in the Sophomore ss; making thirty-six graduates in all, registered in undergraduate sses.

The number of students in the Graduate School admitted to the grees of A.B., A.M., Ph.D., and S.D., and the number of students other departments of the University admitted to the degree of M., at Commencement, 1891, is shown in the following table: —

Graduate students admitted to A.B.	7	
Graduate students admitted to A.M.	36	
Graduate students admitted to Ph.D	7	
Graduate students admitted to S.D.	1	51
Seniors admitted to A.M., with A.B.	2	
Professional students admitted to A.M. on special courses of study	5	
Professional students admitted to A.M. with a professional degree	31	38
Total of the above list		89
Deduct Graduate students admitted to A.B.		7
Total number admitted to A.M., Ph.D., or S.D.		82

Those admitted to the degrees of A.M., Ph.D., and S.D. may also classified as follows: —

Harvard Bachelors of Arts or Science, or persons receiving A.B. at the same time, not also graduated elsewhere	58	
Harvard Bachelors of Arts or Science, also graduated elsewhere	6	
Students not Harvard Bachelors of Arts or Science	18	82

The following are the names of the students admitted to the degree *Doctor of Philosophy and Master of Arts* or to the degree of *Doctor Science*: —

To Ph.D.

Herman Vandenburgh Ames, A.B. (*Amherst Coll.*) 1888, A.M. (*Harvard iv.*) 1890; in History and Political Science (American History).

George Aaron Barton, A.B. (*Haverford Coll.*) 1882, A.M. (*Ibid.*) 1885, A.M. *Harvard Univ.*) 1890; in the Semitic Languages and History.

Herbert Haviland Field, A.B. 1888, A.M. 1890; in Natural History (Zoölogy).

Fred Emory Haynes, A.B. 1889, A.M. 1890; in History and Political Science merican History).

John William Henry Walden, A.B. 1888, A.M. 1889; in Ancient Languages lassical Philology).

William McMichael Woodworth, A.B. 1888; in Natural History (Zoölogy).

Theodore Francis Wright, A.B. 1866, A.M. 1869; in Philosophy (Metaphysics).

To S.D.

orge Howard Parker, S.B. 1887; in Natural History (Zoölogy).

Of the students admitted to the degrees of Ph.D. and S.D. Ames is now instructor in History at the University of Mich Dr. Barton is Associate in Biblical Study and Semitic Languag Bryn Mawr College, Pennsylvania; Dr. Woodworth is Instruc Microscopical Anatomy at this University, and is at the same continuing his studies in the Graduate School; Dr. Wright is and Professor of Homiletics at the New Church Theological S Cambridge; while Drs. Field, Haynes, Parker, and Walde continuing their studies in Europe, the two last being hold fellowships.

The fellowships belonging to the Graduate School were held, year 1890–91, by the following persons: —

Non-Resident Fellows.

Harris Fellowship, E. E. Hale, Jr., A.B. 1883, (*first year*), studying *Philology* at Halle and Jena.

Rogers " C. F. A. Currier, A.B. 1887, A.M. 1888, (*second year*), ing *History and Constitutional Law* at Paris.

" " J. H. Gray, A.B. 1887, (*second year*), studying *Science* at Paris and Vienna.

Parker " M. Bôcher, A.B. 1888, (*third year*), studying *Math* at Göttingen.

" " A. F. Foerste, A.B. (*Denison Univ.*) 1887, A.M. (*Univ.*) 1888, PH.D. (*Ibid.*) 1890, (*third year* as a *first* as a non-resident fellow), studying *Petrograp Mineralogy* at Heidelberg.

" " H. W. Haley, A.B. (*Amherst Coll.*) 1887, A.M. (*Univ.*) 1888, PH.D. (*Ibid.*) 1890, (*third year* as a *first* as a non-resident fellow), studying *Classical Ph* at Leipzig.

" " L. L. Jackson, A.B. 1885, PH.D. 1888, (*second year*), st *Chemistry* at Göttingen.

Kirkland " F. B. Williams, A.B. 1888, A.M. 1890, (*first year*), st *History and Jurisprudence* at Berlin.

Walker " A. H. Lloyd, A.B. 1886, A.M. 1888, (*second year* as a *first* as a non-resident fellow); studying *Philosophy* lin and at his home in New Jersey.

Tyndall Scholarship, D. W. Shea, A.B. 1886, A.M. 1888, (*third year* as a *second* as a non-resident fellow), studying *Physics* at

Paine Fellowship, E. Cummings, A.B. 1883, A.M. 1885, (*third year*), st *Social Science* at Berlin.

Resident Fellows.

Morgan " R. E. Edes, A.B. (*Johns Hopkins Univ.*) 1889, (*first* studying *Physiology, Anatomy, and Psychology.*

" " D. S. Miller, formerly a student at the *Pennsylvan versity* and at *Clark University*, (*first year*), st *Philosophy.*

Fellowship, G. J. O. Pfeiffer, Diploma (*Zürich Polytechnicum*) 1886, PH.D. (*Univ. of Zürich*) 1887, (*first year*), studying *Chemistry;* in place of J. Torrey, Jr., who resigned at the beginning of the year to accept an assistantship.

" W. L. Phelps, A.B. (*Yale Univ.*) 1887, (*first year*), studying *English;* appointed early in the year 1890–91.

" L. M. Underwood, PH.B. (*Syracuse Univ.*) 1877, PH.D. (*Ibid.*) 1879, Professor of Natural History in Syracuse University, (*first year*), studying *Botany.*

" H. B. Ward, A.B. (*Williams Coll.*) 1885, (*first year*), studying *Zoölogy.*

Lee Memorial Fellowship, T. E. Will, A.B. 1890, (*first year*), studying *Political Science.*

Goodwin Memorial Fellowship, H. V. Ames, A.B. (*Amherst Coll.*) 1888, A.M. (*Harvard Univ.*) 1890, (*first year*), studying *American History.*

Bromfield Rogers Memorial Fellowship, W. E. B. DuBois, A.B. (*Fisk Univ.*) 1888, A.B. (*Harvard Univ.*) 1890, (*first year*), studying *Ethics in its relations to Sociology.*

the close of the academic year Mr. Ames was admitted to the e of Ph.D. at this University; Mr. Bôcher to the degree of at Göttingen; and Messrs. DuBois, Phelps, and Will to the e of A.M. at this University. Messrs. Ames, Bôcher, Cum-, Currier, Edes, Foerste, Haley, Jackson, Lloyd, Pfeiffer, s, Shea, Underwood, and Will withdrew from their fellowships close of the academic year. Drs. Bôcher, Haley, and Pfeiffer, Messrs. Cummings and Phelps have received appointments as ctors or assistants at this University; Dr. Ames and Messrs. r, Lloyd, and Will have received appointments at other institu- Professor Underwood has returned to the chair of Natural y at Syracuse University; Dr. Foerste and Mr. Shea are con- g their studies in Europe; Dr. Jackson has an important pro- nal position in New York; and Mr. Edes has entered the Medical l of this University.

e appointments to fellowships for the academic year 1891–92 follows: —

Miller was transferred from a Morgan to the Walker fellow- but with the understanding that he would continue his studies as dent student; Mr. Williams was transferred from the Kirkland Parker Fellowship; Messrs. DuBois Gray, Hale, and Ward were ointed to the same fellowships they held in 1890–91; and the ing new appointments were made: —

Non-Resident Fellows.

Fellowship, John William Henry Walden, A.B. 1888, A.M. 1889, PH.D. 1891, now studying *Classical Philology* at Berlin.

Parker Fellowship, Howard Beers Gibson, A.B. 1888, now studying *Chem* at Leipzig.

" " George Howard Parker, S.B. 1887, S.D. 1891, now stu *Zoölogy* at Leipzig.

" " James Brown Scott, A.B. 1890, A.M. 1891, now stu *Political Science* at Berlin.

Kirkland " Jonathan Brace Chittenden, S.B. (*Worcester Poly. Inst.*) A.B. (*Harvard Univ.*) 1889, A.M. (*Ibid.*) 1890, now ing *Mathematics* at Königsberg.

Resident Fellows.

Morgan " William James Battle, A.B. (*Univ. of North Carolina*) A.M. (*Ibid*) 1889, PH.D. (*Ibid.*) 1890, A.M. (*Ha Univ.*) 1891, a student of *Classical Philology*.

" " George Lucius Collie, S.B. (*Beloit Coll.*) 1881, A.M. (*vard Univ.*) 1891, a student of *Geology*.

" " Herbert Darling Foster, A.B. (*Dartmouth Coll.*) 1885 (*Ibid.*) 1888, a student of *History*.

" " William Suddards Franklin, S.B. (*Univ. of Kansas*) S.M. (*Ibid.*) 1888, a student of *Physics*.

" " Alfred LeRoy Hodder, a student of *Philosophy*.

Tyndall Scholarship, Allison Wing Slocum, A.B. (*Haverford Coll.*) 1888, (*Ibid.*) 1889, a student of *Physics*.

Henry Lee Memorial Fellowship, William Hill, A.B. (*Univ. of Kansas*) A.B. (*Harvard Univ.*) 1891, a student of *Political Sc*

Ozias Goodwin Fellowship, William Garrott Brown, A.B. (*Howard Coll.*, 1886, A.B. (*Harvard Univ.*) 1891, a student of *Histo*

No appointment for 1891–92 has yet been made to the Paine Fe ship of Social Science.

Thirty-three scholarships were held by resident students in Graduate School during the year 1890–91. At the close of the on recommendation of the Faculty of Arts and Sciences, the nu of the Shattuck Scholarships, which are reserved by the terms o gift for students of languages or of mathematics, was reduce order to increase their income. There are now only seven, inste thirteen, Shattuck Scholarships; and each has an income of The number of Townsend Scholarships was reduced from five to on account of a necessity arising from the diminished income o fund. Thus, the number of scholarships available for Graduate dents was reduced from thirty-three to twenty-six. In view, how of the greatly increased number of applications, the Corporatio the close of the year, voted to establish, till further order of the B twenty University Scholarships, each having an income of The number of fellowships available for Graduate students is twenty, varying in yearly income from $750 to $450, and aggreg $11,200 per year. The number of scholarships available for Grad

students is forty-six, varying in annual income from $300 to $150, and aggregating $10,450.

Besides the above-named fellowships and scholarships, two foundations are administered outside of the University for the benefit of Graduate students. These are the Hemenway Fellowship and the Scholarship of the Harvard Club of San Francisco.

The Hemenway Fellowship was presented by Mrs. Mary E. Hemenway, at the close of the year 1889–90, to the trustees of the Peabody Museum of American Archaeology and Ethnology, to be awarded annually to a student in that department of study pursuing his studies in the Graduate School of the University. This fellowship was held in the year 1890–91 by Mr. John Gundy Owens, who was reappointed at the end of the year for the year 1891–92.

The Scholarship of the Harvard Club of San Francisco was established by that club in the year 1886–87. This scholarship is annually awarded by the club to a graduate of the University of California pursuing, or intending to pursue, his studies in the Graduate School of this University, and the appointment is made on recommendation of the Faculty of the University of California, or in consultation with that Faculty. This foundation is an interesting example of the valuable services which are in many ways rendered to the University by the Harvard Clubs throughout the country. The scholarship was held in the two years 1887–88 and 1888–89 by Mr. Adolph Caspar Miller, a student of Political Economy, who received the degree of A.M. at this University in 1888, and has since 1889 been an instructor in Political Economy at this University, at the University of California, and (now) at Cornell University. It was held in the two years 1889–90 and 1890–91 by Mr. William Emerson Ritter, a student of Zoölogy, who received the degree of A.M. at this University in 1891, was an Assistant in Zoölogy in 1890–91, and is now an Instructor at the University of California. It is held during the current year by Mr. Archie Burton Pierce, a student of Mathematics.

The number of candidates applying in the spring of 1891 for fellowships and scholarships to be held in the Graduate School during the academic year 1891–92 was one hundred and eighty, of whom thirty-four were candidates for reappointment. This number exceeded the corresponding number in the preceding year by seventy-three, an increase of more than two thirds. Thirteen additional applicants presented themselves at the beginning of the current academic year, making one hundred and ninety-three applicants in all. But a small number of applicants ultimately withdrew from competition on account of having received appointments to instructorships or assistantships

here or elsewhere. The whole list of one hundred and ninet applicants is here considered together; since all the appointme the current year, though made in part since the close of the las constitute one connected piece of business, properly belonging work of the year 1890–91.

Of the applicants for fellowships and scholarships above e ated, nineteen received fellowships; forty-six received schola thirteen, of whom ten are now pursuing studies in the Gr School, received instructorships or assistantships; eleven r Price Greenleaf Aid and entered undergraduate classes; eight students in the Graduate School without holding appointments are students in professional schools of the University; and s seven (or about two fifths) are now unconnected with the Univ The number of persons appointed to fellowships and scholarsh almost exactly *one third* of the number of applicants. One h and four of the applicants, or a little more than *one half* of th list, have become, either with or without aid, students in the Gr School or the College. The number of appointments is sti insufficient to meet the demands of promising students wh to enter the Graduate School and are unable to do so assistance.

In the award of fellowships and the more valuable scholarsh preference was given, more decidedly than in former years, to cants who have already been students in the College, the Sc School, or the Graduate School, for at least one year; while n the minor appointments and a few of the more important one bestowed, as heretofore, on applicants unconnected with the U sity on the strength of testimonials presenting evidence of merit. In the present condition of the Graduate School this of distribution appears likely to produce the best results for th versity and for the cause of higher education, and to prove in t the most satisfactory to worthy applicants. It holds out to al ambitious students a well-founded hope that, if they can co by their own efforts the means of pursuing their studies succe for one year at the University, they will be regarded as havi quired a strong claim to appointment for a following year, o longer period, to a fellowship or scholarship which will make th tinuance of their studies easy; and that they may even be e afterwards to study for a year or more at a foreign univer holders of travelling fellowships. It, moreover, places the ap ment to a fellowship or scholarship clearly in the light of a pr justly earned, rather than in that of a gratuity having its simply in benevolence.

The subjoined table presents a classified enumeration of the applicants for fellowships and scholarships and of the persons who received the appointments: —

	Applicants.	Appointees.
Students of Philology	45	18
Students of Philosophy, History, and Political Science	59	20
Students of Mathematics, Physics, and Chemistry	41	15
Students of Natural History	30	12
Students in other branches, or proposing mixed courses, or without statement of purpose	18	0
	193	65
Members of the Graduate School	53	28
Members of the Senior Class	37	15
Members of Professional Schools	3	0
Former students in some department of the University	19	4
Persons never connected with the University	81	18
	193	65
Harvard A.B.'s, S.B.'s, A.M.'s, Ph.D.'s, and S.D.'s, not also graduated elsewhere	32	16
Harvard A.B.'s, S.B.'s, A.M.'s, Ph.D.'s, and S.D.'s, previously graduated elsewhere	12	5
Graduates of other institutions, and not of Harvard University	104	31
Harvard Seniors not already graduated elsewhere	23	9
Undergraduates of other institutions and other non-graduates	22	4
	193	65

Among the subjects which occupied the attention of the Administrative Board of the Graduate School during the year 1890–91 may be mentioned two proposed changes, namely: the required publication of Doctors' Dissertations, and the assignment of some of the College rooms to Graduate students. It has been a rule of the Graduate Department that students attaining the degree of Ph.D. or S.D. are permitted to print their theses, with the certificates of their having been approved for the degree; and also that in all cases a written or printed copy of the thesis must be deposited in the College Library and be open to public inspection. But the publication of the thesis is one of the required conditions of the degree in most German and several American universities, and this requirement is generally regarded as tending to ensure the maintenance of a high standard of scholarship and ability for the degree. After a full discussion of the subject the Administrative Board felt unable to recommend to the Faculty the adoption of a rule which would impose a heavy pecuniary burden upon persons receiving a doctorate. In some departments of study the publication is, indeed, easily provided for through recog-

nized channels; but this would only heighten the grievance fo dents who could avail themselves of no such opportunity. T publication of the thesis, often requiring costly plates, woul matter of serious expense; and any partial publication, as it ap to the Board, would be quite inadequate to the desired end. over, in the opinion of the Board, the requirement of publicati less effective security of work of the highest grade than it app be at first sight; and is in danger of leading to a collaborati tween teacher and pupil beyond the legitimate line which lea thesis in its true position as the individual work of the student

The College rooms are now occupied not only by College graduates, but by regular and special students of the Scientific and by students in *any Cambridge department of the Universi are graduates of Harvard College.* On the other hand, students Graduate School who are not graduates of Harvard College — attending on regular courses of instruction offered by the Fac Arts and Sciences, and separated by a very thin line of divisio College undergraduates of high standing as scholars; and they are the very persons whom the Faculty are most desi attracting to the University with the best inducements as to m living, and incorporating as full members of the University moreover, though they may have received appointments to fello and scholarships of the most honorable grade existing in the U sity — have no right to occupy College rooms, and their appli for rooms cannot even be considered under the rules. This s things is felt by the Administrative Board of the Graduate and by the Faculty of Arts and Sciences to be one which ough remedied; and the Faculty, at the instance of the Board, recomm last year to the Corporation that a change be made in the ru this subject. The Faculty have not yet been able to frame a p tion which meets the views of the Corporation on this point; is earnestly to be hoped that some way may soon be found of Graduate students in a better position in regard to this highly i ant matter.

The Administrative Board have found some difficulty in d how far students who also hold assistantships can be regar doing full work in their capacity as students. In some case students appear to gain more than they lose, because their clos tion to some laboratory, museum, or library is highly favor their research-work, or because their duties are nearly allied t own line of study. In other cases they are so much occupie

routine-work or elementary teaching as to lose a great deal of the time and the spirit which they need for advanced investigation or reading. The Board have thus far dealt with these cases individually, according to their best judgment of their merits. But it is greatly to be hoped that enquiries embracing this subject, which are now referred to a special committee of the Faculty, may lead to a clear and satisfactory general solution of the perplexing question here indicated.

Twenty years have now passed since the adoption by the Corporation and Overseers of the Standing Rules under which the degrees of Master of Arts, Doctor of Philosophy, and Doctor of Science are given by this University. The first meeting of the Academic Council, as revived for the purpose of administering these rules and of the supervision of candidates, and for other purposes, was held on the 30th of January, 1872; and the degree of A.M. was given without examination for the last time at the following Commencement. The catalogue for 1872–73 contains the names of fifteen students intending to apply for the new degrees, some of these having been in fact Graduate students in the preceding year; and the degree of Ph.D. or S.D. was conferred on three candidates at Commencement, 1873. It cannot be regarded as premature to raise the enquiry now whether experience points to any needed amendments in the system under which we have lived so long.

In regard to the degrees of Ph.D. and S.D., I feel no doubt that such enquiry would lead to the conclusion that the standards of attainment and ability for those degrees have been in the main well chosen and satisfactorily maintained. The degrees have never been allowed to rest on any mere computation of time or of courses, on any consideration of rights acquired by faithful compliance with regulations, or on any other mechanical grounds whatever. The prominence given to the thesis as a foundation of these degrees has proved to be a valuable safeguard of their quality and significance. Their value can be maintained, indeed, only by ever-continuing vigilance and unsparing criticism on the part of the several committees charged with their administration. But for the past it may safely be said that if we should now pass in review the claims of all the persons on whom the degrees have been conferred since 1872, we should find few, if any, cases in which we should now question the soundness of the award or its distinct creditableness to the University as a seat of learning.

Two questions connected with the interpretation of the requirement of residence may, however, be suggested for consideration. The first of these questions is, how far study in the graduate department of

another American or foreign university may be accepted in lieu o
required residence and study here. The Administrative Board de
some attention to this question in the course of the year 1890–91
expressed the opinion that such study might be accepted to the e
of one of the two years of residence and study for the degr
Ph.D. or S.D., at the discretion of the Faculty in each case.
second and more difficult question is, under what conditions a st
who is absent from the University for the purpose of carryin
special researches in the field may be still counted as resident, o
empted from the requirement of residence. The department of Ge
offers a striking example of a field of study in which the student
not do the work of original research belonging to preparation fo
degree of Ph.D. or S.D. without not merely visiting the loca
which present the problems connected with the special line of in
gation he may have selected, but spending a large proportion o
time of study in the thorough and long-continued exploration of
localities. The same necessity may also present itself in the
branches of Natural History, in American Archaeology and Ethno
and even sometimes in History, in Philology, and in the stud
Classical and Semitic Antiquities. It cannot be the true poli
the University to limit the field of learning known to its scho
or lower the quality of their research, by cutting off original l
of this kind. Yet, on the other hand, it seems to me importa
provide safeguards, — in the form of frequent communication bet
the student and the professor under whose supervision he is regis
as working, and of report from time to time to the Administr
Board, — which shall insure that every person whose name is en
on our books as that of a resident student is really carrying o
studies in close connection with instruction given at the Unive
and in such a way that his work is constantly known to those
appear to have him in charge. A fair proportion of each year,
fixed by general rule by the Faculty, should also be spent in a
residence, in the working up of results or otherwise. It should
be made certain that the necessities of his course of study furni
each case the true motive of the student's absence. It is further
to be remarked that the existing rules permit the reduction o
time of residence, for one who is already a graduate of this Unive
to one year; but they permit no further reduction.

The degree of Master of Arts was given, for a long series of y
ending with 1872, to any Bachelor of Arts of three years' stan
on the payment of a small fee and with no requirement whatev
residence or study additional to that already implied in the degre
A.B. The establishment of even a very moderate requiremen

A.M. was a great advance on this discreditable condition of things, for which the only excuse was that it had existed for a time beyond the memory of any man then living. The requirement adopted in 1872 was then felt to be as severe as the sentiment of a generation which attached little value to the degree of A.M. would bear; and at the same time to be the slightest that could worthily be imposed. It was one year of residence and study in approved courses, additional to the residence and study required for A.B. Sometime later the Academic Council voted that they would approve for A.M. only courses of *advanced grade*, and that the examinations must be passed with *high credit*. These conditions still exist and have a wholesome influence on the character of the degree, although the Administrative Board find the interpretation of the first of them beset with some difficulties. But it must be confessed that a degree resting on a single year of study, which has in some cases no definite character, must be a degree of low significance. Moreover, some students are now able to take the degree at the same time with that of A.B., and many more have done at graduation a part of the work which might be accepted for A.M. It seems, therefore, that the time is approaching when it will be desirable either to raise the conditions on which this degree rests or to place it frankly in the position of only a higher form of the degree of A.B. If the requirements for the degree of A.M. were so raised that they would normally necessitate from ordinary candidates *two* years of study in addition to the study for A.B., but would render it easy, or fairly possible, for many of our own best graduates and for some of those who come to us from other colleges to take the degree in one year by counting extra work already done, not required by the earlier degree, and by choosing and pursuing successfully courses of study of distinctly advanced grade, it seems to me that a far sounder and more creditable basis for the degree would be established than now exists, and at the same time one which it would be within our power at the present time, and with the present interest in graduate study, to adopt and maintain; and also that our relations to other colleges in regard to the degree would thus be greatly improved. No conflict would thus arise with the degree of Ph.D.; for that degree, as has been already remarked, rests on far higher considerations than a mere counting of time and courses; and, moreover, it is very common for a candidate for either of the doctorates to continue his studies, before coming up for the degree, through three, four, or even five years.

The alternative change suggested above is that of lowering the standard of the degree of A.M. so as to make it effectively an Honor Degree of A.B. A more emphatic separation than now exists be-

tween the mere pass degree of A.B. and the degree with dist
is greatly to be desired; and some raising of the standard
latter degree must be made as a condition of such separation.
dents completing the College course with distinguished credit,
the same time completing a moderate amount of additional w
decidedly advanced grade, might well be rewarded with a high
gree; and the number of such students would soon be not inco
able. But the line separating the pass from the *cum laude* deg
A.B. must necessarily be kept at a point which might, indee
be higher than at present and yet would be too low to mark th
mum requirement for the degree of A.M. Nor could the Gr
School well dispense with a degree intermediate between th
A.B. and Ph.D. On the contrary, there would be some adv
(if the rather unimportant distinction between the degrees of
and S.D. is to be maintained) in establishing a degree of Ma
Science, intermediate between the S.B. and the S.D.

It appears to me, therefore, that the first-named solution
problem — namely, the moderate raising of the requirement
degree of A.M. — is the true one; and I beg to ask your att
and that of all persons interested in the sound development
Graduate School, to this suggestion.

JAMES MILLS PEIRCE, *D*

17 DECEMBER 1891.

THE DIVINITY SCHOOL.

TO THE PRESIDENT OF THE UNIVERSITY:

SIR, — As Dean of the Divinity Faculty, I beg to present t
lowing report for the academic year 1890–91: —

Forty-one students were connected with the School the last
larger number than were ever before enrolled at one time. It
be added, however, that more students than usual were interru
their work by sickness and other causes, so that the number in
attendance during the year was not greater than during th
before.

The students were divided as follows: —

Resident Graduates	15
Senior Class	8
Middle Class	9
Junior Class	6
Special Students	3

Eleven Theological Seminaries were represented, as follows: —

Andover	1
Bangor	1
Canton	1
Doshisha	1
Harvard	1
Hillsdale	1
Meadville	5
Pacific	1
Tufts	1
Union	1
Yale	3

The discrepancy between these figures and the number of Resident Graduates given above is caused by the fact that certain members of the Middle and Senior Classes had already graduated at theological schools.

Twenty-one Colleges and Universities were represented, namely: —

Adrian	1	Johns Hopkins	1
Amherst	1	Mt. Allison	1
Antioch	2	College of New Jersey	1
Bates	1	Olivet	1
Colby	2	St. Stephens	2
Denver	1	Trinity (N. C.)	1
Doshisha	2	Tufts	1
Harvard	9	Washington State University	1
Illinois Wesleyan	1	Washington (St. Louis)	1
University of Iowa	1	University of Wisconsin	1

Six students graduated from the School of whom three received the degree of A.M. with that of B.D. Three took the degree of A.M. for a year's work in the School. There were 170 elections of studies which were originally merely Divinity School courses, by far the largest number (110) being in connection with Professor Peabody's course on "The Ethics of Social Questions." An interesting feature of the Commencement exercises was the representation of the Divinity School by a Japanese member of the Graduating Class — the first of his nationality to receive a degree from this University.

The figures that have been given show that teaching the graduates forms an increasing element in the work of the School and make it evident how imperfectly this work is represented by the number of the Graduating Class. While this class numbered only six, twenty-nine men, who had been under the instruction of the School taking complete or partial courses for a whole or a part of the year, left during the year, twenty-four of them at the end of the year. Two of these left with the purpose of returning and completing their course. The fact that

Instructors.	Subjects.	No. of hours per week.	Attendance.	
			Divinity Students.	College Students.
	Old Testament.			
Prof. Lyon	Hebrew I. — Davidson's Grammar. — Read most of Genesis and fifteen Psalms	3	5	6
Prof. Toy	Hebrew II. — Driver's Hebrew Tenses. — Readings from Smith's Old Testament in the Jewish Church; Kuenen's Hexateuch. — Lectures on Pentateuchal Criticism, and on the Book of Psalms	2	1	5
Prof. Lyon	The History of Israel, Political and Social. — Version of the Old Testament. — Lectures. — Parallel Readings	2	8	13
Prof. Toy	The History of pre-Christian Hebrew Literature. — Two Theses and several Themes were required	2	15	1
Prof. Toy	The History of the Religion of Israel. — Smith's Religion of the Semites	2	10	6
Prof. Lyon	Assyrian I.	2		3
Prof. Lyon	Assyrian II.	2		1
Prof. Lyon	Babylonian-Assyrian History	1	1	6
	New Testament.			
Prof. Thayer	New Testament Times: — the political, social, moral, and religious condition of the World when Christ appeared	2*	11	
Prof. Thayer	Outline Lectures on Theological Encyclopaedia and Literature; the Characteristics of the New Testament Greek; the Septuagint; Textual Criticism; the Life of Christ. — Study of the Gospels. — Essays and Criticisms	2	7	1

Prof. Thayer	Lectures on our English Bible and its recent Revision. — Lectures on topics in Biblical Theology. — Exposition of Difficult Texts. — Essays and Criticisms	2	7	
Prof. Thayer	Biblical Interpretation: — its History, its Methods, its Principles and their Application (to New Testament Passages of historical, prophetical, ethical, and doctrinal import)	1	1	
	Church History.			
Prof. Emerton	General Church History. — Lectures, Reading, and Essays	2	8	2
Prof. Emerton	The History of Christian Doctrines	2	12	
Prof. Emerton	Advanced Study and Research in Church History. — Church and State in the Middle Ages. — Reading of a mediæval text and study of special topics	2*	3	1
	Comparative Religion.			
Prof. Everett	Studies in the Comparative History of Religions, particularly the Vedic Religion, the Hindu Philosophies, Buddhism, Mazdaism, and the Chinese Religions	2	17	4
	Ethics.			
Prof. Peabody	The Ethics of the Social Questions. — The Questions of Charity, Divorce, the Indians, Temperance, and the various aspects of the Labor Question (Socialism, Communism, Arbitration, Coöperation, etc.), as problems of practical Ethics. — Lectures, essays, and practical observations	2	4	108
	Theology.			
Prof. Peabody	The Philosophy of Religion. — An Introduction to the study of Theology	1	6	9
Prof. Everett	Systematic Theology begun: The Psychological basis of Religious Faith	1	16	3
Prof. Everett	Systematic Theology continued: The Content of Christian Faith. An elaborate essay on some Theological subject is expected from each student taking this course	3	12	

* During the first half-year. † During the second half-year.

Instructors.	Subjects.	No. of hours per week.	Attendance.	
			Divinity Students.	College Students.
	Homiletics and Pastoral Care.			
Prof. Peabody and Mr. Hale	The Structure and Analysis of Sermons	1	6	
Profs. Everett and Peabody	Each student writes six sermons during the year, three of which are preached before the two upper classes and criticised by students and Instructor; the rest are criticised privately, both as to composition and delivery, in preparation for the public preaching in the Chapel of the School	1	10	
Prof. Peabody	Liturgics and the History of Christian Worship: its Prayers, its Hymns, and its Preaching.	1*	18	
	Elocution.			
	Mr. Churchill met the students generally in small groups for instruction in Elocution. He was also present with Professor Peabody at the preaching exercise named above (Homiletics 2). He was here one day in the week during the year.			
	General Exercises.			
	Every Friday evening there was preaching in the Chapel of the School by students. This was open to the public. — Meetings for Religious Conference, conducted by the students, were held once in two weeks. — The meetings of the Debating Club alternated with the above. — Morning Prayers, conducted by students and teachers.			

so many enter, intending to remain only a year or two, necessarily changes somewhat the character of the School. A large proportion of the men are new every year. The elective system makes it easy for a man to remain a year or two, selecting what seems to him most important, and then to leave, going perhaps to another school, or seeking some field of labor. The habit of dividing one's professional studies among different universities, taking what is most special in each, as is often done in Germany, is perhaps not a bad one. So far as this School is concerned, this method of study enables it to meet and to influence more persons than was formerly possible, while there is no falling off in the number of those who take the three-years' course. There is thus gain with no loss in the present condition of affairs.

The year was a pleasant one owing to the fact that all the professors were at their posts, no one being away on leave of absence.

The condition of the Divinity School Library is as follows: —

	Vol.	Pam.
In the Library, Oct. 1, 1890	21,576	3,852
Added by purchase, Oct. 1, 1890, to Sept. 30, 1891	200	. .
Added by gift, Oct. 1, 1890, to Sept. 30, 1891	1,367	415
	23,143	4,267
Less duplicates sold	69	33
	23,074	4,234
Increase in volumes, decrease in pamphlets by binding	126	563
In the Library, Oct. 1, 1891	23,200	3,671

The accessions were chiefly made up of two large gifts, one of 520 volumes and 73 pamphlets from the library of Rev. Henry W. Foote, given to us by Mrs. Foote, and the other of 668 volumes and 77 pamphlets from the library of Dr. Hedge, given by his son Frederic H. Hedge, Jr. Both of these gifts make interesting memorials of men who held special relations with the School, the one through his active connection with the Society for Promoting Theological Education, and the other as professor in the School. The books given by Mrs. Foote are of special value to us as they were selected by her from a list of those specially desirable for our Library which our librarian prepared from a catalogue of Mr. Foote's library.

During the year 6500 volumes have been catalogued. This number is large, as it includes most of our periodicals. The number of titles included in it is 3345, of which 2246 were fully catalogued for both author and subject catalogues. The Library is now about half catalogued.

From Oct. 1, 1890, to Sept. 30, 1891, there were borrowed from the stack for use at home 820 volumes, and for use in the building 206 volumes, and from the reserved books for over-night use 953

volumes. These figures show a gratifying increase over those of
preceding year. The Library is open for the use of readers from
o'clock in the morning to nine o'clock in the evening. Great us
made by students of the opportunity thus offered; but of this us
statistics can be given.

Mr. Edward N. Kirby, who had taught elocution in the School
three years with marked acceptance and success having declined a
appointment, the School was extremely fortunate in obtaining for
important branch of instruction the services of Professor John
Churchill of the Theological Seminary at Andover. Profe
Churchill gives the School one day of each week.

The lecture before the whole School with which it is our custo
begin the work of the year, was given by the Dean, on "The
and methods of the Harvard Divinity School."

While the Semitic Museum is not connected with the Divi
School, yet the opening of this valuable collection should be refe
to as furnishing important help in certain departments of theolo
study. The Assyrian antiquities belonging to the School have
transferred to this museum.

The Faculty have received with gratitude the information that
Frederic Frothingham, who graduated in 1849, had left to
Divinity School the sum of $30,000 for the purpose of foundi
Professorship of Ecclesiastical History. Such gifts are always
comed, and are received with special satisfaction when they c
from our own alumni.

The instruction given during the year needs little comment. In
department of Church History a plan somewhat different from
of former years was adopted, a course of three hours a week b
given on General Church History with the object of supplying t
students one comprehensive view of the whole subject.

A table of courses of instruction actually given, and of attenda
is added.

C. C. EVERETT, *Dea*

NOVEMBER 28, 1891.

THE LAW SCHOOL.

TO THE PRESIDENT OF THE UNIVERSITY:

SIR, — I beg to submit the following report upon the Law Sc
for the academic year 1890–91: —

The table on p. 105 gives the courses of study and instruction du
the year, the names of the instructors, the text-books used, the nu
of exercises per week in each course, and the number of students
offered themselves for examination in each course at the end of the y

Instructors.	Studies and Text-books.	Exercises per week.	No. of students examined.
	FIRST YEAR.		
Prof. Williston	Contracts. Langdell's Cases on Contracts	3	145
Prof. Gray	Property. Gray's Cases on Property, vol. 1, 2	2	133
Prof. Smith	Torts. Ames's Cases on Torts	2	140
Prof. Williston	Civil Procedure at Common Law. Ames's Cases on Pleading	1	137
Mr. Chaplin	Criminal Law and Procedure. Chaplin's Cases on Criminal Law	2	142
	SECOND YEAR.		
Prof. Smith	Agency. No text-book	2	53
Prof. Williston	Bills of Exchange and Promissory Notes. Ames's Cases on Bills and Notes	2	25
Prof. Ames	Contracts. Keener's Cases on Quasi-Contracts	2	53
Prof. Thayer	Evidence. No text-book	2	54
Prof. Langdell	Jurisdiction and Procedure in Equity. Langdell's Cases in Equity Pleading	2	18
Prof. Gray	Property. Gray's Cases on Property, vol. 3, 4	2	73
Prof. Thayer	Sales of Personal Property. Langdell's Cases on Sales	2	34
Prof. Ames	Trusts. Ames's Cases on Trusts	2	69
	THIRD YEAR.		
Prof. Thayer	Constitutional Law. No text-book	2	20
Prof. Smith	Corporations. No text-book	2	37
Prof. Langdell	Jurisdiction and Procedure in Equity. No text-book	2	22
Prof. Ames	Partnership. Ames's Cases on Partnership	2	37
Prof. Gray	Property. Gray's Cases on Property, vol. 5, 6	2	21
Prof. Langdell	Suretyship and Mortgage. No text-book	2	18
Prof. Smith	Agency. No text-book	2	29
Prof. Williston	Bills of Exchange and Promissory Notes. Ames's Cases on Bills and Notes	2	18
Prof. Ames	Contracts. Keener's Cases on Quasi-Contracts	2	2
Prof. Thayer	Evidence. No text-book	2	2
Prof. Langdell	Jurisdiction and Procedure in Equity. Langdell's Cases in Equity Pleading	2	1
Prof. Thayer	Sales of Personal Property. Langdell's Cases on Sales	2	4
Prof. Ames	Trusts. Ames's Cases on Trusts	2	1

The following table exhibits the attendance at the School du the last twenty-one years : —

Year.	Whole no. of students.	No. present during the whole year.	No. present only part of the year.	Average n ber.
1870–71	165	107	58	136
1871–72	138	107	31	123
1872–73	117	109	8	113
1873–74	141	121	20	131
1874–75	144	130	14	137
1875–76	173	153	20	163
1876–77	199	168	31	184
1877–78	196	172	24	183
1878–79	169	137	32	154
1879–80	177	138	39	157
1880–81	161	136	25	149
1881–82	161	139	22	146
1882–83	138	120	18	129
1883–84	150	130	20	140
1884–85	156	139	17	148
1885–86	158	142	16	151
1886–87	188	160	28	174
1887–88	225	197	28	211
1888–89	225	198	27	212
1889–90	262	229	33	245
1890–91	285	255	30	272

The following table exhibits the School as divided into classes the establishment of the three-years' course and the examinatio admission : —

Year.	1877–78.	1878–79.	1879–80.	1880–81.	1881–82.	1882–83.	1883–84.	1884–85.	1885–86.	1886–87.	1887–88.	1888–89.	1889–90.
First . .	72	63	78	57	61	59	58	75	55	75	89	74	90
Second .	79	50	32	58	41	38	40	37	46	47	55	66	59
Third .	.	.	21	14	25	20	22	17	17	24	33	27	52
Sp. Stu.	31	47	46	32	34	21	30	28	40	42	46	58	62

In regard to the last table, it is to be observed that, althoug three-years' course went into operation at the beginning of 187 there was no third-year class until 1879–80. It is also to be obse that the second-year class of 1877–78 did not take the three-years' co but was graduated at the end of the second year, that class ha entered the School before the three-years' course went into opera

The following table exhibits the results of the examinatio admission in each year since they were established : —

	1877–78.	1878–79.	1879–80.	1880–81.	1881–82.	1882–83.	1883–84.	1884–85.	1885–86.	1886–87.	1887–88.	1888–89.	1889–90.	1890–91.
Offered	16	15	18	25	19	12	12	17	17	14	33	15	20	28
Admitted	7	7	12	13	16	10	5	11	7	6	17	11	10	11

The following table exhibits the results of the examinations for a degree in each year since the establishment of the three-years' course: —

Year.	First year.			Second year.			Third year.		
	Offered.	Passed.	Failed.	Offered.	Passed.	Failed.	Offered.	Passed.	Failed.
1877–78	66	51	15	66	47	19	.	.	.
1878–79	50	42	8	40	39	1	.	.	.
1879–80	73	69	4	28	26	2	22	18	4
1880–81	45	43	2	49	46	3	18	18	0
1881–82	49	44	5	38	37	1	36	33	3
1882–83	46	44	2	36	34	2	21	19	2
1883–84	51	41	10	35	31	4	26	25	1
1884–85	61	56	5	30	29	1	23	19	4
1885–86	54	48	6	41	38	3	18	18	0
1886–87	66	59	7	40	38	2	26	26	0
1887–88	80	70	10	43	34	9	33	32	1
1888–89	72	66	6	58	55	3	30	29	1
1889–90	86	75	11	52	49	3	51	47	4
1890–91	107	102	5	62	54	8	47	46	1

In regard to the foregoing table it is to be observed that it includes no Special Students, and hence that all the applicants included in it were either graduates of colleges or had passed the examination for admission. Of course this remark does not apply to the second-year class of 1877–78, and this accounts in part for the much greater number of failures in that class.

The following table exhibits the number of students who have received the honor degree in each year since it was established: —

1879–80.	1880–81.	1881–82.	1882–83.	1883–84.	1884–85.
7	8	10	10	5	5
1885–86.	**1886–87.**	**1887–88.**	**1888–89.**	**1889–90.**	**1890–91.**
7	9	9	12	14	17

The following table exhibits the number of students who, since the establishment of the three-years' course, have been examined for a degree in the studies of any year without having been members of the School during that year: —

The following table exhibits the attendance at the School du the last twenty-one years: —

Year.	Whole no. of students.	No. present during the whole year.	No. present only part of the year.	Average nu ber.
1870–71	165	107	58	136
1871–72	138	107	31	123
1872–73	117	109	8	113
1873–74	141	121	20	131
1874–75	144	130	14	137
1875–76	173	153	20	163
1876–77	199	168	31	184
1877–78	196	172	24	183
1878–79	169	137	32	154
1879–80	177	138	39	157
1880–81	161	136	25	149
1881–82	161	139	22	146
1882–83	138	120	18	129
1883–84	150	130	20	140
1884–85	156	139	17	148
1885–86	158	142	16	151
1886–87	188	160	28	174
1887–88	225	197	28	211
1888–89	225	198	27	212
1889–90	262	229	33	245
1890–91	285	255	30	272

The following table exhibits the School as divided into classes s the establishment of the three-years' course and the examination admission: —

Year.	1877–78.	1878–79.	1879–80.	1880–81.	1881–82.	1882–83.	1883–84.	1884–85.	1885–86.	1886–87.	1887–88.	1888–89.	1889–90.
First . .	72	63	78	57	61	59	58	75	55	75	89	74	90
Second .	79	50	32	58	41	38	40	37	46	47	55	66	59
Third .	.	.	21	14	25	20	22	17	17	24	33	27	52
Sp. Stu.	31	47	46	32	34	21	30	28	40	42	46	58	62

In regard to the last table, it is to be observed that, althoug three-years' course went into operation at the beginning of 1877 there was no third-year class until 1879–80. It is also to be obse that the second-year class of 1877–78 did not take the three-years' co but was graduated at the end of the second year, that class ha entered the School before the three-years' course went into opera

The following table exhibits the results of the examinations admission in each year since they were established: —

	1877–78.	1878–70.	1879–80.	1880–81.	1881–82.	1882–83.	1883–84.	1884–85.	1885–86.	1886–87.	1887–88.	1888–89.	1889–90.	1890–91.
ed	16	15	18	25	19	12	12	17	17	14	33	15	20	28
tted	7	7	12	13	16	10	5	11	7	6	17	11	10	11

following table exhibits the results of the examinations for a e in each year since the establishment of the three-years' :—

Year.	First year.			Second year.			Third year.		
	Offered.	Passed.	Failed.	Offered.	Passed.	Failed.	Offered.	Passed.	Failed.
877–78	66	51	15	66	47	19	.	.	.
878–79	50	42	8	40	39	1	.	.	.
879–80	73	69	4	28	26	2	22	18	4
880–81	45	43	2	49	46	3	18	18	0
881–82	49	44	5	38	37	1	36	33	3
882–83	46	44	2	36	34	2	21	19	2
883–84	51	41	10	35	31	4	26	25	1
884–85	61	56	5	30	29	1	23	19	4
885–86	54	48	6	41	38	3	18	18	0
886–87	66	59	7	40	38	2	26	26	0
887–88	80	70	10	43	34	9	33	32	1
888–89	72	66	6	58	55	3	30	29	1
889–90	86	75	11	52	49	3	51	47	4
890–91	107	102	5	62	54	8	47	46	1

egard to the foregoing table it is to be observed that it in- no Special Students, and hence that all the applicants included ere either graduates of colleges or had passed the examination mission. Of course this remark does not apply to the second- lass of 1877–78, and this accounts in part for the much greater r of failures in that class.

following table exhibits the number of students who have re- the honor degree in each year since it was established : —

879–80.	1880–81.	1881–82.	1882–83.	1883–84.	1884–85.
7	3	10	10	5	5
885–86.	1886–87.	1887–88.	1888–89.	1889–90.	1890–91.
7	9	9	12	14	17

following table exhibits the number of students who, since the shment of the three-years' course, have been examined for a in the studies of any year without having been members of the l during that year : —

Year.	First year.			Second year.			Third year	
	Offered.	Passed.	Failed.	Offered.	Passed.	Failed.	Offered.	Passed.
1877–78	5	2	3	.	.	.	.	.
1878–79	3	2	1	.	.	.	.	.
1879–80	6	4	2	1	1	0	5	4
1880–81	6	4	2	.	.	.	4	4
1881–82	2	1	1	.	.	.	10	8
1882–83	3	3	0	.	.	.	3	2
1883–84	7	6	1	.	.	.	3	3
1884–85	3	2	1	.	.	.	6	4
1885–86	4	3	1	.	.	.	2	2
1886–87	3	3	0	.	.	.	4	4
1887–88	5	3	2	1	0	1	2	2
1888–89	12	8	4	.	.	.	3	3
1889–90	7	6	1	.	.	.	.	.
1890–91	11	9	2	1	0	1	1	1

The following table exhibits the number of students who entered the School in each year during the last twenty-one years shows how many of them were graduates of colleges; and o latter, how many were graduates of Harvard and how many of colleges: —

Year.	Whole number of entries.	Graduates of colleges.	Harvard graduates.	Graduates of other colleges.	Non-g ate
1870–71	105	60	19	41	45
1871–72	92	56	26	30	36
1872–73	87	47	22	25	40
1873–74	95	58	29	29	37
1874–75	102	55	40	15	47
1875–76	119	67	39	28	52
1876–77	128	77	47	30	51
1877–78	111	79	47	32	32
1878–79	102	62	38	24	40
1879–80	124	76	59	17	48
1880–81	91	60	41	19	31
1881–82	97	53	29	24	44
1882–83	84	56	33	23	28
1883–84	86	61	47	14	25
1884–85	101	79	56	23	22
1885–86	88	60	35	25	28
1886–87	113	80	46	34	33
1887–88	134	82	52	30	52
1888–89	111	77	50	27	34
1889–90	153	102	66	35	52
1890–91	160	107	65	42	53

e following table exhibits the average age at which students entered the School in each year since 1873–74, that being the ear in which a record of ages was kept; also the age at which ard graduates, graduates of other colleges, and non-graduates ctively, have entered the School in each year since 1873–74; he average age at which students have entered the School during hole period since 1873–74; also the average age at which ard graduates, graduates of other colleges, and non-graduates ctively, have entered the School during the whole period since -74: —

Year.	Of whole number of entries.	Of Harvard graduates.	Of graduates of other colleges.	Of non-graduates.
1873–74	23.34	23.58	23.76	22.83
1874–75	22.71	23.66	22.78	21.88
1875–76	22.98	22.35	23.28	23.28
1876–77	22.33	22.83	22.49	21.76
1877–78	23.34	23.25	23.83	22.97
1878–79	22.56	23.14	22.88	21.81
1879–80	23.20	23.46	22.77	23.02
1880–81	22.36	22.66	23.11	21.50
1881–82	22.68	23.06	23.73	21.85
1882–83	22.73	22.94	23.12	22.13
1883–84	22.64	23.17	22.86	21.53
1884–85	22.68	23.33	22.10	21.65
1885–86	22.73	23.21	22.84	22.03
1886–87	22.90	23.31	24.00	21.50
1887–88	22.86	23.33	23.42	22.07
1888–89	23.07	23.26	23.84	22.23
1889–90	22.91	23.19	22.83	22.42
1890–91	23.29	23.57	23.20	23.03
-74 to 1890–91	22.87	23.22	23.21	22.25

thin the short period of six years the School has more than ed in size, its numbers having increased (according to the an- catalogues) from 154 in 1885–6 to 363 in the current year = .424). If we compare the number of new entries in the cur- ear (205) with those of the corresponding date in 1885–6 (85), ve about the same result ($\frac{85}{205}$ = .425). This comparison shows n of 120 in new entries in six years, or at the rate of 20 in each In 1886–7 the gain was 19, in 1887–8 it was 20, in 1888–9 was no gain, but a loss of 22, in 1889–90 not only was the loss e previous year made up, but in addition there was a gain of 22, 90–91 there was a gain of 6, while in the current year there is a of 53 (19 + 20 + 0 + 22 + 6 + 53 = 120). In making this com- on the entries of each year have been taken, not for the entire , but to the date corresponding to that of this report.

	1877–78.	1878–79.	1879–80.	1880–81.	1881–82.	1882–83.	1883–84.	1884–85.	1885–86.	1886–87.	1887–88.	1888–89.	1889–90.	1890–91.	1891–92.
Alabama	·	·	·	·	1	·	·	·	·	·	·	·	·	·	
Arkansas	·	·	·	1	·	1	·	·	·	·	·	·	·	·	
California	2	5	5	3	4	3	2	2	3	3	7	2	4	7	6
Cape Breton Island	1	·	1	·	1	·	·	·	·	·	·	·	·	·	
Colorado	·	·	·	·	·	1	·	·	1	2	·	·	2	·	
Connecticut	·	2	·	3	2	·	2	1	1	2	1	3	2	2	4
Delaware	2	1	·	·	1	·	1	·	·	·	·	1	3	1	
District of Columbia	·	·	1	2	·	·	·	4	1	1	1	·	2	3	
England	·	·	·	·	·	·	·	·	·	·	1	·	·	·	
Florida	·	·	·	·	·	·	·	·	·	·	1	·	·	·	
Georgia	·	·	2	1	1	·	·	·	1	·	·	·	·	·	2
Hawaiian Islands	·	·	·	·	·	·	·	·	·	1	·	1	·	1	
Illinois	7	2	4	1	4	5	1	1	2	6	6	4	9	8	12
Indiana	·	·	·	1	1	1	·	·	·	3	·	3	·	·	
Iowa	·	1	1	·	·	1	3	·	1	·	1	·	2	·	4
Japan	1	·	·	·	·	·	·	·	1	·	·	·	·	·	
Kansas	·	1	·	·	·	·	·	2	1	·	1	·	·	·	1
Kentucky	1	1	2	·	1	2	·	1	·	1	2	2	1	3	3
Louisiana	·	·	1	·	·	·	·	·	·	1	1	1	1	1	
Maine	3	4	6	5	2	4	5	2	·	5	3	2	6	3	12
Maryland	1	1	1	1	1	·	·	2	1	2	1	3	2	·	
Massachusetts	44	51	69	35	38	30	46	49	39	46	52	49	58	70	76
Michigan	1	·	·	·	·	2	2	1	1	3	·	2	1	1	2
Minnesota	·	·	·	·	·	·	1	·	·	1	1	·	3	1	4
Mississippi	·	·	·	·	·	1	·	·	1	·	·	·	·	·	
Missouri	1	1	3	·	1	1	2	1	2	2	2	·	1	1	2
Nebraska	·	·	·	·	·	·	·	·	·	·	1	·	1	·	
New Brunswick	2	2	·	5	3	·	1	·	·	1	2	·	4	2	
New Hampshire	5	2	6	2	1	3	·	4	2	3	7	2	2	6	3
New Jersey	1	4	1	1	1	·	·	1	1	·	1	2	·	3	3
New York	11	5	7	7	10	6	8	8	9	8	11	7	12	15	13
Nova Scotia	·	2	·	·	3	3	1	·	·	·	·	·	·	1	3
Ohio	10	2	4	10	8	4	1	6	6	6	8	5	8	1	13
Pennsylvania	3	6	·	1	2	3	4	2	3	4	5	6	6	6	5
Prince Edward Island	·	·	·	·	·	·	·	1	·	·	·	·	·	·	
Rhode Island	2	1	·	1	·	1	1	2	·	3	2	1	4	5	6
South Africa	·	·	·	·	·	·	·	·	·	·	·	·	·	1	
South Carolina	2	·	1	·	1	2	1	·	2	·	·	·	·	2	
South Dakota	·	·	·	·	·	·	·	·	·	·	·	·	·	·	
Tennessee	·	1	·	1	·	·	·	·	·	1	3	1	·	3	1
Texas	·	1	1	·	2	1	·	·	·	·	·	·	2	·	
Utah	·	·	·	·	·	·	1	·	1	·	·	·	1	3	
Vermont	1	2	2	2	3	2	1	3	2	1	1	2	·	1	
Virginia	1	·	·	1	·	2	·	·	1	·	·	·	·	1	
Washington	·	·	·	·	·	·	·	·	·	·	1	·	·	·	
West Virginia	·	·	·	·	1	·	·	·	·	·	1	2	·	·	
Wisconsin	2	·	1	1	·	·	1	2	1	2	3	3	1	5	

e preceding table exhibits the whole number of students who been members of the School since the establishment of the three- course, classified according to the states and countries from they came.

re will be found in the Appendix (pp. 214–219) a table exhibit- ie number of graduates of colleges other than Harvard who ie members of the School between 1870–71 and 1891–92, both ive, classified by colleges.

his remarkable increase in the number of new entries very little me from Harvard graduates. It is true that only 35 Harvard ates entered the School during the year 1885–6, while 57 have y entered in the current year. But, on the other hand, 59 had d at the corresponding date in 1890–91, and 61 at the corre- ing date in 1889–90. Moreover, 47 entered in the year 1883–4, 1884–5, 46 in 1886–7, 52 in 1887–8, and 50 in 1888–9, while, back as 1879–80, 59 entered during the year. The large in- in the number of new entries within the last six years has, ore, come chiefly from graduates of other colleges than Harvard om non-graduates, and the extraordinary increase in the current as come wholly from those two sources.

1870–71 the graduates of other colleges who entered the School exceeded the Harvard graduates (19) by more than two to one. g the next two years the Harvard graduates gained in number, the graduates of other colleges lost. In 1873–4 there were 9 of each. In 1874–5 the Harvard graduates jumped to 40, the graduates of other colleges dropped to 15; and in every from 1874–5 to 1890–91, both inclusive, being a period of 17 the number of Harvard graduates entering the School exceeded from all other colleges, and on an average they exceeded them arly two to one ($\frac{442}{706} = .559$). There seem to have been two s for this comparative falling off in the graduates of other col- namely, the increased requirements for our degree, and the ant multiplication of law schools in all parts of the country. eventeen years this School was unable to offer sufficient attrac- to overcome these two obstacles. At length, however, it has eded in accomplishing that object, at least if the experience of rrent year is to be taken as any indication of the future. In 6 only 25 graduates of other colleges entered the School. In 7 the number rose to 34, the largest number since 1870–71. 87–8 the number was 30, in 1888–9 it was 27, in 1889–90 it was e largest number since 1870–71, in 1890–91 it was 42, 1 more in 1870–71, and in the current year, to date, the number has d to 73, being an increase of 31 over the whole number who

entered in 1890–91. More than two thirds of this increase has from three New England colleges, namely, Bowdoin, Brown, Yale. These three colleges have sent us during the current ye date, 33 students, being a larger number by 24 than they sent any previous year since 1870–71, inclusive. Bowdoin, which se only 19 students in the 21 years from 1870–71 to 1890–91, both i sive, and no more than three in any one of those years, has se 8 this year. Brown, which sent us only 36 students in th years from 1870–71 to 1890–91, both inclusive, and, in the 13 from 1873–4 to 1885–6, both inclusive, only an average of 1 in year, has sent us 7 this year. Yale, which sent us only 60 in t years from 1870–71 to 1890–91, both inclusive, — an average o quite 3 in each year, — has this year sent us 18, being a larger ber by 12 than it has sent us in any one of the preceding 21 yea

The non-graduates who have entered the School during the cu year, to date, number 75, being 22 more than entered in 189 (53), and 1 more entered in the latter year than in any one o preceding 20 years.

The 363 students now in the School consist of 142 first-year dents, 112 second-year students, 48 third-year students, an special students. Of the 142 first-year students, 7 were in the S last year; and probably they would all have been this year in th of special students but for a rule which went into effect at the b ning of the current year, and which prevents any student who fa any year to pass an examination in at least three subjects from re ing in the School as a special student. Deducting these 7, remain 135 new men in the first year. Of the remaining 70 entries (205 — 135 = 70), 14 entered the second-year class entered as special students and 12 withdrew without becoming for any tuition fee, and, therefore, without acquiring a right to their names appear in the annual catalogue.[1]

The number of second-year students now in the School (11 abnormally large. In fact, the present second-year class is l now by 6 than it was in its first year. This is accounted for in by the fact that the class received an accession of 27 new men at the beginning of the current year, namely, 10 who were i second-year class last year, and who are again in the second class this year through the operation of the new rule just referre

[1] In giving the number of new entries in any year, in this and other r upon the Law School, every person is included who has entered his name the other particulars required, in the "Book of Entries"; and hence severa sons are always included who, for the reason stated in the text have never b actual members of the School.

entered in advance; 4 who were in the first-year class in 1889–
d who, having been absent during the year 1890–91, reëntered
hool at the beginning of the current year; and 5 who, having
usly been special students, gained admission to the second-year
at the beginning of the current year. Deducting these 27,
er, there still remain 85 men in the second-year class who were
from the first-year class of 1890–91, being the entire class
21 (106 — 85 = 21), — a very remarkable fact, especially when
dded that 5 of the 21 are still in the School (*i. e.*, in the first-
ass), and that of the 16 who have not returned to the School
had passed sufficient examinations to entitle them to enter the
-year class.

present third-year class is relatively small (48), being larger
nly than the third-year class of 1890–91 (45), and smaller by
the third-year class of 1889–90 (52); and yet, when it entered
hool (1889) there were 153 new entries, being 42 more than in
111), and 19 more than in 1887 (134). In truth, the class as
as never been prosperous. It started with a smaller number
relatively to the whole number who entered the School during
ear (153), than any other class that has entered the School
the last six years; and it has lost a larger number from failures
s the necessary examinations than any other class which has
d the School within the same period. Having started with 90
ers, it lost 35 of these before the beginning of its second year,
us its number was reduced to 55. At the beginning of its
year, however, it received an accession of 18 new members, 5
om were admitted to advanced standing, 5 of whom, having
usly been special students, then gained admission to the second
nd 8 of whom, having been members of previous classes, had
cquired the right to enter the second year. The class thus
its second year with 73 members, 25 of whom it lost before
ginning of its third year, and thus its number was reduced to
which number it now consists.

hould be added, however, that 19 of the men whom the third-
lass has lost are still in the School, 16 of them being members
second-year class, 2 of them being members of the first-year
and 1 of them being a special student. Independently of this
owever, it is believed that the relative smallness of the third-
lass has no significance in relation to the prosperity of the
, but that it is due entirely to accidental causes.

number of special students now in the School (61) is precisely
me as a year ago; and yet the number of non-graduates who
lready entered the School during the current year (75) is

greater by nearly one third than the whole number who entere
ing the preceding year (53). One explanation of this will be
in the operation of the new rule already referred to, which pr
any student who in any year fails to pass an examination in a
three subjects from remaining in the School as a special st
How many students have been kept out of the School during th
rent year by the operation of this rule alone, it is impossible t
but the inference is that the number is not inconsiderable, — a c
stance which makes the great increase in the aggregate num
students in the School all the more significant.

The School is now face to face with a new and very difficult
lem. When Austin Hall was erected it was expected to
ample accommodation for all the students who would seek adn
to the School during the next fifty years. Only eight of thos
years have now passed; and yet the building is already outgro
believe 300 was the number that it was intended to accomm
and the School now exceeds that number by more than fifty.
these circumstances, what is to be done? The case is a very p
one. If the question were merely one of giving instruction
increased number of students, a solution of it might be found
division of the larger classes into sections, though it is believe
a majority of the Faculty would regret the necessity even of
measure. But the question of giving instruction to so large a n
of students as the School is likely very soon to have, does not p
the only, nor even the chief difficulty with which we are confr
Austin Hall is the place where our students do their work as w
receive their instruction; and this is a condition of things whic
not be changed or interfered with without irreparable injury
School. The reason is that the library is in Austin Hall an
constant access to that, on the part of every student, is indispe
if the present methods of the School are to be maintained; a
both the library and the students' reading-room are already ta
their utmost capacity. The capacity of the library, indeed
admit of some enlargement by the purchase of more copies o
books as are in most constant use; but all that can be done i
direction is required to be done in order to meet existing der
Indeed, it is generally conceded that nothing short of an add
building and an additional library will make it practicable f
School to furnish suitable accommodation for a larger number o
dents than it now has; and yet probably no one seriously expe
see another building erected and occupied within the next five
Relief in that direction is, therefore, too remote for present needs
hence the practicability or advisability of it need not be here c

. The size of our present first and second year classes makes it
y clear that we shall have more students next year than can be
erly accommodated unless some mode of relief can be devised.
not too much to say that fifty more students next year than we
this year would greatly interfere with the comfort of every per-
connected with the School; and the only effective mode of guard-
against such a state of things, either next year or for the next
years, would seem to be by limiting the number of students to
eceived. It has already been decided to admit to the School after
year only graduates of colleges and such non-graduates as pass
examination for admission; and the requirements of the latter
o be materially increased. If this change were to go into effect
year, perhaps the safe and prudent course would be to wait
her year before making any further change. Unfortunately,
ever, the change already announced, so far from affording any
f for next year, will aggravate the evil by increasing the number
on-graduates who will seek admission to the School as special
ents. If, however, it should be decided to limit hereafter the
ber of students to be received, there would seem to be no good
on why we should not next year discriminate in favor of graduates
lleges and such non-graduates as pass the admission examina-
. When it is once decided that the number of students is to be
ed, surely we may give a preference to those who are best qualified
ail themselves of the advantages which the School offers.

he most pressing question, however, just now is, not what shall be
, but whether anything shall be done; for the danger is that all
n will be delayed until the beginning of the next year is actually
us; and then it will be too late to act until another year. If no
n be taken during the current year, and we find ourselves at the
nning of next year with more students than we can properly care
we shall be in a dilemma for which there will be no excuse. The
lem awaiting solution is one which time will not solve; nor do
eed further experience to aid us in its solution. We already
, with as much certainty as anything of such a nature can be
rn, that, if no action be taken, next year will witness a large in-
se in the number of students in the School; and we already know
will be the effect of such an increase.

he librarian is in despair at the rapid consumption of the library
h is now going on. The word "consumption" is used advisedly.
ed, perhaps "destruction" would not be too strong a word to ex-
s the existing state of things. What is here referred to is not
ncreased use of the library consequent upon the increased num-
of students in the School. Such increased use is legitimate, and

is to be expected and desired. What is referred to is the abus making the library perform the function of furnishing text-book the students. When the system of teaching by cases was first i duced, it was found impracticable to employ it without printing cases to be used; and yet the School was then only about one of its present size. Now, however, the system is so well establi and so much in vogue that it is found practicable to employ it i largest classes, though no member of the class be able to stud cases used except in the books belonging to the library; and actually so employed to an extent that threatens speedy ruin t library; and yet the very circumstance which renders this pra now so peculiarly destructive to the library, namely, the large si our present classes, renders printing much more feasible than form as it enables an instructor who incurs the expense of printing a c tion of cases to reimburse himself much more speedily than forme

It should be clearly understood that it is not the *amount* bu *kind* of use to which it subjects the library that constitutes the objection to the practice in question. In short, the objection to that it causes the speedy destruction of some portion of every vo of Reports containing one or more cases to which a large cla referred, *i. e.*, so much of it as comprises the case or cases ref to. Nor is the mischief confined to the particular volumes ruined; for volumes of Reports are generally in sets, and the ru one volume in a set is the ruin of the entire set to which it bel For example, the Law Journal is a series of English Reports and utes extending from 1823 to the present time, and now comprisin volumes, published at over five dollars per volume (unbound). W the last few days my attention has been called to a volume of series containing a case which has been given out to a class; and sheets containing that case were so completely worn out, torn, defaced that the volume, in its present condition, will not adm being rebound; and nothing short of procuring those sheets t reprinted in England will suffice to restore the set.

No reference has been made to the inconvenience and loss of caused to the students by the practice of giving out cases the copies of which accessible to the students are those which the lib contains; for that is a question with which the library has no con It may be observed, however, that every device for relieving the dents, and for rendering the practice in question more feasible the students' point of view, only increases and aggravates the in to the library. Such is the device of referring to every different containing a report of a case given out to a class. This was d less the cause of the catastrophe to the Law Journal just referre

nearly every case there reported is also reported in the regular orts. Such also is the device of printing, at the beginning of the , summaries of different courses, with lists of all the cases to be red to; for this has the effect of greatly increasing the number udents who, first or last, will study every case contained in such

C. C. LANGDELL, *Dean.*

STIN HALL, December, 1891.

THE MEDICAL SCHOOL.

THE PRESIDENT OF THE UNIVERSITY:

r, — As Dean of the Medical Faculty I have the honor to sub- he following report upon the Medical School for the academic 1890–91: —

uring the past year the Faculty has taken a very important towards a still further advance of the standard of medical ation. After a prolonged discussion, the Faculty on May 16th l with almost perfect unanimity to establish a single four-years' ed course of instruction to go into effect in Sept. 1892. The ulties which for the last thirteen years have attended the plan of ng a required three-years' and an optional four-years' course of uction will thus be removed and the Harvard degree of M.D. have a single definite meaning. The Faculty has not lost sight e possible diminution of the number of students consequent upon ncrease in the requirements for the degree; but it feels that, as c munificence has in the past enabled it to carry out its educa- l reforms, it will be able to appeal with perfect confidence to the nunity to make good any loss of income arising from this cause.

he opening of the Sears laboratory building in December of the ent year was an important event in the history of the School. ough in the construction of the main building eight years ago facilities were provided for instruction in Pathology, they have dy been found insufficient, and a new and important branch of cal science, Bacteriology, has practically been created since the nal plans were drawn. The very timely and generous gift of Sears, already announced in the report for 1888–89, has greatly ged our capacity for instruction in these directions by providing mmodious and well-equipped building devoted exclusively to ratories for Pathology and Bacteriology. Dr. Sears has not only tly added to our facilities for teaching these two subjects, but he lso indirectly benefitted the departments of Anatomy, Histology

and Embryology; for the teachers of these subjects now have gre improved accommodations in the rooms of the main building forme occupied by the Pathological department.

The courses for graduates and the Summer courses of instruct have become important features in the work of the School. Gratify evidence of the success which is attending these efforts to enlarge sphere of usefulness of the School is furnished by table V. given bel showing the attendance and receipts in these departments in success years.

The connection between the Medical School and the other dep ments of the University has been made closer during the past year the adoption in the Faculty of Arts and Sciences of a recommendat of the Medical Faculty that certain laboratory courses, distinct fr the regular instruction given to Medical students, be recognized suitable courses for students in the Graduate School. By a rec vote these courses have been thrown open to candidates for the deg of A.B., thus enabling undergraduates intending to enter the medi profession to accomplish the very desirable object of shortening th period of academic training.

An important addition to our means of encouraging original resea in medicine has been made by the establishment, through the gen osity of Wm. S. Bullard, Esq., of three fellowships of $5000 each be designated as the George Cheyne Shattuck, the John Ware, s the Charles Eliot Ware Memorial Fellowships. The income of th fellowships may be paid to any "student or member of the medi profession who shall be selected by the Faculty of the Medical Sch to make such original investigations in medical science as in th opinion will be most useful to the profession and the community."

An event likely to have an important influence on the prosperity the School is the establishment during the past year of the Harv Medical School Association, the objects of which are "to advance t cause of medical education, to promote the interests and increase t usefulness of the Harvard Medical School, and to promote acquai ance and goodfellowship among the members of the Association. graduates of the Harvard Medical School are eligible to be and m become members if approved by the Council." The Association h already the names of 835 members on its rolls and at the annu meeting and dinner on June 23d the interest displayed in the n organization was such as to leave no doubt that the medical alum of Harvard yield to those of no other department in their attachme to the University. Judging from the experience of the Law School may reasonably be expected that great material benefits will derived from this organization of the graduates of the School.

ch special work has been done in the School in addition to the
ır instruction as set forth in the appended tables. This work
e summarized as follows: —

atomy. — In the dissecting room much work has been done in
ting statistics of details of anatomical structure with reference
its of variation and to anomalies of surgical and medico-legal
tance. The collection of large models of bones for class demon-
ns made by Mr. Emerson under the direction of the professor of
ny is increasing.

tology and Embryology. — Asst. Prof. C. S. Minot has nearly
eted his work on Human Embryology and in connection with
udies for it has published a paper entitled "A theory of the
ure of the Placenta" (Anat. Anzeiger, VI. 125).

Samuel Dexter, whose recent death has deprived us of an
iastic and able student of pure science, pursued his investigations
laboratory and published a short but valuable paper in the
mische Anzeiger, vol. VI., entitled "The Somites and the
e in the Chick."

siology. — Dr. J. W. Warren made an extended series of
ations on the knee jerk, studying particularly the phenomena
esting themselves when blows are struck upon both liga-
either simultaneously or separated by a short interval of

R. E. Edes studied by means of a capillary electrometer the
es in the action current of an excised nerve under the influence
longed stimulation.

C. A. Ewald investigated the effect of light upon the respira-
as exchange in frogs.

J. E. Goldthwait used the facilities afforded by the laboratory
work upon the surgery of bones.

mistry. — Prof. E. S. Wood has investigated the time required
e complete elimination of arsenic from the system, and has
ained that about twice as much time is required as is stated in
rd works on toxicology.

coöperation with Dr. F. C. Shattuck special study has been
to the character of the urine in cases of uraemia, particularly
ermine changes in the amount of the lower products of oxi-
, such as uric acid, kreatinine, etc., in cases of uraemic
ing.

k upon dried bloodstains has also been continued.

. W. B. Hills has been engaged, at the request of the State
of Health, in investigating the subject of chronic arsenical

poisoning as caused by paperhangings, fabrics, and other arti
domestic use containing arsenic.

Pathology. — Dr. W. F. Whitney has investigated the anc
of the vermiform appendix and its histological changes in
and chronic appendicitis. Numerous photographs from hi
parations were used in illustrating his remarks on the sub
the annual meeting of the Massachusetts Medical Society, J
1891.

Dr. Henry F. Sears has studied the structural changes in mal
disease, with especial reference to the alterations of the cell nuc
to the nature of the peculiar bodies in cancer cells regarded by
observers as psorosperms.

Dr. John T. Bowen has been at work upon the histology of
cular disease of the skin and has embodied his results in a pa
the Pathology of Cutaneous Tuberculosis, read at the annual m
of the American Dermatological Association in Washington, Se
1891, and published in the Boston Medical and Surgical Jo
Nov. 12, 1891.

Bacteriology. — Drs. Ernst and Jackson have been engag
clinical and experimental work upon Tuberculin with results
have been already partly reported in the Transactions of the A
tion of American Physicians.

During the year six dogs have been submitted for the experi
diagnosis of rabies with positive results in four cases.

Dr. Stephen A. Martin's work on Vaccine Virus has been con
with encouraging results, but owing to physical disability wit
regularity than heretofore.

Dr. A. K. Stone has experimented upon sterilization as con
with surgical technique.

The whole number of students in attendance

During the year was	353
During the first term	328
During the second term	333

Of these 175 had literary or scientific degrees.

There were 65 applicants for the degree of Doctor of Medic
the three-years' course, of whom 16 were rejected.

There were 17 applicants for the degree of Doctor of Medic
the four-years' course, of whom none were rejected; 10 of thes
dents received the degree *cum laude*, and 11 received the deg
Master of Arts together with that of Doctor of Medicine.

The fourth class was composed of 26 students.

scholarships were awarded as follows: —

1st Barringer Scholarship,	F. A. Davis . . .	3d	Class.
2d " "	E. A. Tracy . . .	3d	"
Faculty "	C. B. Dunlap . .	2d	"
" "	J. Selva	2d	"
" "	C. B. Stevens . .	2d	"
" "	J. B. Ogden . . .	2d	"
Cheever "	C. P. Jones . . .	1st	"
Foster Gratuity,	E. G. Bryant . .	4th	"
" "	J. E. Loveland .	2d	"

usual statistics of the School will be found in the appended

H. P. BOWDITCH, *Dean.*

ABLE I. — SHOWING NUMBER OF TERMS SPENT AT THE SCHOOL BY GRADUATES.

	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.
six ms .	79 91%	67 88%	57 96%	63 89%	72 91%	83 85%	77 88%	51 93%	58 88%	62 94%
five ms .	2 2%	4 5%	0	3 4%	3 4%	4 4%	4 4%	2 3%	2 3%	1 1½%
four ms .	4 4%	4 5%	2 3%	4 5%	4 5%	1 1%	3 3%	2 3%	6 9%	1 1½%
three ms .	0	1 1%	0	0	0	0	0	0	0	0
two ms .	1 1%	0	0	1 1%	0	1 1%	3 3%	1 1%	0	2 3%
grad-ed .	86[1]	76[2]	59[3]	73[4]	79[5]	98[6]	87[7]	56[8]	66[9]	66[10]

les nine students of the fourth class.
les six students of the fourth class.
les nine students of the fourth class.
les three students of the fourth class.
les nine students of the fourth class.

[6] Includes eleven students of the fourth class.
[7] Includes eleven students of the fourth class.
[8] Includes seven students of the fourth class.
[9] Includes thirteen students of the fourth class.
[10] Includes seventeen students of the fourth class.

TABLE II. — STATISTICS OF EXAMINATIONS.

EXAMINATIONS FOR ADMISSION.

			Physics.	Latin.	English.	Elective.	Rejected.
1.	June	Offered . .	35	34	38	38	6
		Conditioned	8	7	7	2	
	Sept.	Offered . .	56	55	62	61	5
		Conditioned	12	15	1	7	

poisoning as caused by paperhangings, fabrics, and other arti
domestic use containing arsenic.

Pathology. — Dr. W. F. Whitney has investigated the an
of the vermiform appendix and its histological changes in
and chronic appendicitis. Numerous photographs from h
parations were used in illustrating his remarks on the sub
the annual meeting of the Massachusetts Medical Society, J
1891.

Dr. Henry F. Sears has studied the structural changes in ma
disease, with especial reference to the alterations of the cell nu
to the nature of the peculiar bodies in cancer cells regarded b
observers as psorosperms.

Dr. John T. Bowen has been at work upon the histology of
cular disease of the skin and has embodied his results in a pa
the Pathology of Cutaneous Tuberculosis, read at the annual m
of the American Dermatological Association in Washington, Se
1891, and published in the Boston Medical and Surgical J
Nov. 12, 1891.

Bacteriology. — Drs. Ernst and Jackson have been enga
clinical and experimental work upon Tuberculin with results
have been already partly reported in the Transactions of the A
tion of American Physicians.

During the year six dogs have been submitted for the experi
diagnosis of rabies with positive results in four cases.

Dr. Stephen A. Martin's work on Vaccine Virus has been co
with encouraging results, but owing to physical disability wi
regularity than heretofore.

Dr. A. K. Stone has experimented upon sterilization as co
with surgical technique.

The whole number of students in attendance

During the year was	353
During the first term	328
During the second term	333

Of these 175 had literary or scientific degrees.

There were 65 applicants for the degree of Doctor of Medi
the three-years' course, of whom 16 were rejected.

There were 17 applicants for the degree of Doctor of Medi
the four-years' course, of whom none were rejected; 10 of the
dents received the degree *cum laude*, and 11 received the deg
Master of Arts together with that of Doctor of Medicine.

The fourth class was composed of 26 students.

scholarships were awarded as follows: —

1st Barringer Scholarship,	F. A. Davis . . .	3d	Class.
2d " "	E. A. Tracy . . .	3d	"
Faculty "	C. B. Dunlap . .	2d	"
" "	J. Selva	2d	"
" "	C. B. Stevens . .	2d	"
" "	J. B. Ogden . . .	2d	"
Cheever "	C. P. Jones . . .	1st	"
Foster Gratuity,	E. G. Bryant . .	4th	"
" "	J. E. Loveland .	2d	"

usual statistics of the School will be found in the appended

H. P. BOWDITCH, *Dean.*

BLE I. — SHOWING NUMBER OF TERMS SPENT AT THE SCHOOL BY GRADUATES.

	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.
six ns .	79 91%	67 88%	57 96%	63 89%	72 91%	83 85%	77 88%	51 93%	58 88%	62 94%
five ns .	2 2%	4 5%	0	3 4%	3 4%	4 4%	4 4%	2 3%	2 3%	1 1½%
four ns .	4 4%	4 5%	2 3%	4 5%	4 5%	1 1%	3 3%	2 3%	6 9%	1 1½%
three ns .	0	1 1%	0	0	0	0	0	0	0	0
two ns .	1 1%	0	0	1 1%	0	1 1%	3 3%	1 1%	0	2 3%
grad- ed .	86[1]	76[2]	59[3]	73[4]	79[5]	98[6]	87[7]	56[8]	66[9]	66[10]

des nine students of the fourth class.
les six students of the fourth class.
les nine students of the fourth class.
des three students of the fourth class.
des nine students of the fourth class.

[6] Includes eleven students of the fourth class.
[7] Includes eleven students of the fourth class.
[8] Includes seven students of the fourth class.
[9] Includes thirteen students of the fourth class.
[10] Includes seventeen students of the fourth class.

TABLE II. — STATISTICS OF EXAMINATIONS.

EXAMINATIONS FOR ADMISSION.

			Physics.	Latin.	English.	Elective.	Rejected.
91.	June	Offered . .	35	34	38	38	6
		Conditioned	8	7	7	2	
	Sept.	Offered . .	56	55	62	61	5
		Conditioned	12	15	1	7	

TABLE III. — JUNE EXAMINATIONS.

		First Class and Second Class.																									
		Anatomy.		Physiology.		General Chemistry.		Medical Chemistry.		Materia Medica.		Path. Anatomy.		Adv. Anatomy.		Therapeutics.		Third Class. Theory and Practice.		Clinical Medicine.		Surgery.		Clinical Surgery.		Therapeutics.		Obstetrics.	
			%		%		%		%		%		%		%		%		%		%		%		%		%	
1887	Passed	66		63		49		69		66		67		67				69		74		79		79		73		78	
	Rejected	21	24	22	26	14	22	9	11	21	24	9	11	9	11			12	15	12	14	5	6	2	2	6	8	5	6
	Total	87		85		63		78		87		76		76				81		86		84		81		79		83	
1888	Passed	53		67		46		52		53		57		64				53		64		58		61		58		60	
	Rejected	7	11	10	13	9	16	9	14	15	22	4	6	3	4			7	11	2	3	5	8	0	0	5	8	6	9
	Total	60		77		55		61		68		61		67				60		66		63		61		63		66	
1889	Passed	67		65		55		59		61		58		53		61		59		61		61		62		53		58	
	Rejected	6	8	13	16	9	14	9	13	17	21	5	8	8	13	18	23	12	18	6	9	6	9	4	6	11	17	12	17
	Total	73		78		64		68		78		63		61		79		71		67		67		66		64		70	
1890	Passed	49		68		51		58		65		82		46		77		77		77		75		72				73	
	Rejected	28	36	9	11	11	17	7	10	12	15	13	13	26	36	11	12	7	8	7	8	5	6	0	0			11	13
	Total	77		77		62		65		77		95		72		88		84		84		80		72				84	
1891	Passed	94		87		76		66		86		56		51		65		73		70		75		62				72	
	Rejected	31	24	28	24	22	22	15	18	33	27	7	11	19	27	10	13	7	8	5	6	6	7	1	1			10	12
	Total	125		115		98		81		119		63		70		75		80		75		81		63				82	

Third Class. — Electives.

		Diseases of Child'n.		Dermatology.		Gynæcology.		Nervous Diseases.		Legal Medicine.		Mental Disease.		Ophthalmology.		Otology.	
			%		%		%		%		%		%		%		%
1889	Passed	39		5		20		1		1		1		1		1	
	Rejected	2	5	0	0	1	5	0	0	0	0	0	0	0	0	0	0
	Total	41		5		21		1		1		1		1		1	

		Ophthalmology.		Dermatology.		Gynæcology.		Clinical Obstetrics.		Diseases of Children.		Diseases of Nervous System.		Mental Diseases.		Legal Medicine.		Otology.		Laryngology.		Operative Obstetrics.		Operative Surgery.		Bacteriology.		Hygiene.	
			%		%		%		%		%		%		%		%		%		%		%		%		%		%
1887	Passed	12	25	12	0	8	38			11	0	11	8	8	42	11	0	9	10	11	0			9	18				
	Rejected	4		0		6				0		1		6		0		1		0				2					
	Total	16		12		13				11		12		14		11		10		11				11					
1888	Passed	2	33	3	0	3	0			0		0	0	3	0	2	33	2	33	3	0			0	0				
	Rejected	1		0		0				0		0		0		1		1		0				0					
	Total	3		3		3				0		0		3		3		3		3				0					
1889	Passed	3	0	6	0	8	0	4	33	9	0	1	0	2	0	2	0	0	0	3	0	9	0	1	0				
	Rejected	0		0		0		2		0		0		0		0		0		0		0		0					
	Total	3		6		8		6		9		1		2		2		3		3		9		1					
1890	Passed	3	60	5	0	13	0	12	0	15	11			1	0	1	0	1	0	8	0	16	6	6	25	1	0	1	0
	Rejected	2		0		0		0		2				0		0		0		1		1		2		0		0	
	Total	5		5		13		12		17				1		1		1		9		17		8		1		1	
1891	Passed	11	0	7	0	13	0	7	1	19	0	1	0	1	0	4	0	2	0	1	0	15	0	5	0	2	0	1	0
	Rejected	0		0		0		1		0		0		0		0		0		0		0		0		0		0	
	Total	11		7		13		8		19		1		1		4		2		1		15		5		2		1	

TABLE IV. — SHOWING THE AMOUNT AND CHARACTER OF INSTRUCTION.

COURSES OF INSTRUCTION FOR 1890-91.

Instructors.	Subjects.	Exercises per week.	No. of students examined.
	FIRST CLASS.		
Prof. Dwight	Descriptive Anatomy	Three.	150
Asst. Prof. M. H. Richardson	Practical and Applied Anatomy	Three, November till May.	
Drs. Mixter, Conant, & Munro	Practical Anatomy, Recitations, and Exercises in Dissection	Six, November till May.	
Asst. Prof. C. S. Minot and Dr. Quincy	Laboratory Exercises in Histology	Two, first half-year. Three, second half-year.	
Asst. Prof. C. S. Minot	Histology	Sixteen Lectures.	
Asst. Prof. C. S. Minot	Embryology	Eight Lectures.	
Prof. Bowditch	Systematic and Experimental Physiology	Four.	148
Dr. J. W. Warren	Laboratory Exercises in Experimental Physiology	November till May.	
Prof. Wood	Medical Chemistry	Two, second half-year.	
Prof. Hills	General and Analytical Chemistry	Two, with ten additional Exercises	128
Prof. Hills, Drs. Harrington and Worcester	Practical Exercises in the Laboratory for General Chemistry	Five.	
Dr. Harrington	Hygiene	Eighteen Lectures and Demonstrations.	
Dr. Harrington	Materia Medica with Practical Demonstrations	Two, second half-year.	149
	SECOND CLASS.		
Prof. Dwight	Topographical and Advanced Anatomy	One.	90
Asst. Prof. M. H. Richardson	Practical and Applied Anatomy	Three, November till May.	

Prof. Fitz and Dr. Garnett	Practical Instruction in Performing Autopsies	Throughout the year.	
Profs. Shattuck and Mason, & Drs. Garland & Vickery	Clinical Medicine, including one weekly conference	Seven.	
Drs. Garland, Gannett, and Withington	Practical Instruction in Auscultation and Percussion	Six, first half-year.	
Dr. Cutler	Recitations in Theory and Practice	Two.	
Prof. Knight and Dr. Hooper	Laryngoscopy	Six, first half-year.	
Dr. Burrell	The Application of Bandages and Apparatus	Six, October till January.	
Profs. Cheever and Warren	Clinical Surgery	Two.	
Prof. Porter	Clinical Surgery	Three.	
Drs. Elliot, Harrington, Monks, Burrell, & Watson	Clinical Surgery. Practical Exercises	Throughout the year.	
Asst. Prof. F. H. Williams	Therapeutics	Three.	85
Asst. Prof. Rotch	Paediatrics	Two, for two months.	
	THIRD CLASS.		
Prof. W. L. Richardson	Theory and Practice of Obstetrics	Two.	89
Dr. C. M. Green	Recitations in the Theory and Practice of Obstetrics	One.	
Dr. C. M. Green	Operative Obstetrics	Twelve practical Exercises.	
Drs. C. M. Green, Reynolds, and Townsend	Practical Instruction in Clinical Obstetrics	Throughout the year.	
Prof. W. L. Richardson and Drs. C. M. Green, Reynolds, and Townsend	Obstetrical Conference	One, after December.	
Prof. Minot	Theory and Practice of Physic	Two.	88

COURSES OF INSTRUCTION FOR 1890–91. — (CONTINUED.)

	THIRD CLASS. — (CONTINUED.)		
Profs. Shattuck and Mason, & Drs. Garland & Vickery	Clinical Medicine, including one weekly conference	Seven.	81
Prof. Cheever	Surgery	One, October till January; Two, January till June.	87
Prof. Warren	Surgical Pathology	Two, October till January.	
Prof. Cheever, and Drs. Gay, Bolles, Bradford, Post, and Gavin	Clinical Surgery	Three.	
Profs. Porter and Warren, Asst. Prof. M. H. Richardson, and Drs. Beach, Homans, and Cabot	Clinical Surgery	One.	
Prof. Porter	Clinical Surgery (conference)	One.	64
Prof. Porter	Surgical Anatomy and Operative Surgery	Twice a week in March and April.	
Prof. Porter, Asst. Prof. M. H. Richardson, and Drs. Mixter, Conant, Munro, Monks, Elliot, Harrington, Burrell, Watson, and Scudder	Operative Surgery	Fifteen practical Exercises.	
Dr. Monks	Surgical Landmarks	Ten Exercises.	
Prof. Williams	Diseases of the Eye	Two, first half-year.	2
Prof. Williams	Clinical Ophthalmology	One, till January and after March.	
Prof. White	Diseases of the Skin		

Profs. Blake and J. O. Green	Practical Diagnosis and Treatment of Diseases of the Ear	One, January till April.	
Prof. Blake	Anatomy, Physiology, and Diseases of the Ear	Two, for three months.	1
Asst. Prof. Rotch	Practical Diagnosis and Treatment of Diseases of Children	Two.	75
Dr. Putnam	Practical Diagnosis and Treatment of Diseases of the Nervous System	One.	
Dr. Fisher	Mental Diseases	Two, second half-year.	
Asst. Prof. Draper	Legal Medicine, with Demonstrations	Two, first half-year.	

FOURTH CLASS.

Prof. Fitz	Clinical Medicine	One, for one month.	
Dr. Garland	Clinical Medicine	One, for six months.	
Dr. Gannett	Clinical Medicine.	One, for seven months.	
Dr. Vickery	Clinical Medicine.	One, for three months.	
Dr. Gay	Clinical Surgery	Two, for two months.	
Dr. Burrell	Clinical Surgery	Two, for three months.	
Prof. Porter, Asst. Prof. M. H. Richardson, and Drs. Mixter and Monks	Operative Surgery	Practical Exercises.	5
Dr. Bradford	Orthopedic Surgery	Two, for two months.	
Prof. W. L. Richardson and Dr. C. M. Green	Clinical Obstetrics	Two, for five months.	9
	Operative Obstetrics	Practical Exercises.	15
Prof. Williams	Clinical Ophthalmoscopy	Two, for three months.	11
Dr. Wadsworth	Ophthalmoscopy	Two, for four months.	
Prof. White	Dermatology	Two.	8
Dr. Tilden	Clinical Dermatology	Two, for three months.	

COURSES OF INSTRUCTION FOR 1890–91. — (CONTINUED.)

	FOURTH CLASS. — (CONTINUED.)		
Prof. Baker and Drs. Davenport, Strong, and Swift	Clinical Gynaecology	Two.	14
	Operative Gynaecology	Ten exercises.	
Asst. Prof. Rotch	Diseases of Children	Two, for three months.	19
Drs. Walton and Knapp	Diseases of the Nervous System	Two, for four months.	
Dr. Fisher	Mental Diseases	Two, for four months.	1
Dr. Cowles	Mental Diseases	One, for three months.	
Prof. Knight	Laryngology	Three, for three months.	1
Profs. Blake and J. O. Green	Otology	Three, for eight months.	2
Asst. Prof. Draper	Legal Medicine	Two, first half-year.	4
Dr. Harris	Legal Medicine	Demonstrations.	
Dr. Greenough	Syphilis	Two, for four months.	
Dr. Homans	Ovarian Tumors	Six Lect.; Clin. Exer.	
Dr. Durgin	Hygiene	Sixteen Lectures.	1
Drs. Cabot and Watson	Genito-urinary Surgery	One, for seven months.	
Dr. Ernst	Bacteriology	One, for four months.	4
Boston Cooking School	Cookery	Two, for one month.	

TABLE V.

	SUMMER COURSES.			GRADUATE COURSES.		
	1889.	1890.	1891.	1888–89.	1889–90.	1890–91.
Courses taken	54	60	77	27	64	145
Students . . .	33	45	65	22	32	43
Receipts . . .	$1250.00	$1425.00	$1817.50	$617.00	$1295.00	$2137 00

THE DENTAL SCHOOL.

E PRESIDENT OF THE UNIVERSITY:

— As Dean of the Dental Faculty I have the honor to submit llowing report upon the Dental Department for the year 91: —

number of students matriculating was forty-four, divided as s, viz.: First year, twenty-three; second year, four; third or ting year, seventeen. On account of sickness or for other three of the first-year men dropped out during the year. Of rd-year men three were students of the preceding year who iled to pass the final examinations.

he Commencement in June, 1891, fourteen were graduated and ailed to pass.

subjects of instruction in the first year have been mainly the as in former years, consisting of Anatomy, with dissecting; logy, including compulsory laboratory work in sections; and al and Analytical Chemistry. These studies have been pursued Medical School, under the instruction of its professors and in tion with the Medical Class, and the students have taken with ass the regular examinations.

ew form of instruction has also been given for the first time, to ts of the first year, by Drs. Stoddard and Boardman upon in- n of the Faculty, in the elements of Operative Dentistry, two oons of each week. This instruction proved of great assistance paring students for practical work on patients at the beginning next year.

Operative and Mechanical Dentistry the usual amount of instruc- as been given by professors and instructors. Owing to the fact hese two branches constitute by far the greatest part of the life- of the dentist, much the greater part of the School time during cond and third years is necessarily devoted to them. One hour ry morning of every week of the academic year is devoted to ic teaching by the various professors and instructors, while the f the day is equally divided between these two departments for practical teaching. In this practical work the general efficiency een greatly increased, and the School is prepared to give better ction than at any previous time. Instruction has been given natically for the first time by Dr. E. E. Hopkins in crown and e work, and clinical instruction by Drs. Clapp, Cooke, Potter, and Wilson in methods of operative work. Dr. E. H. Smith has

given a very valuable, interesting, and instructive course of lectures and clinics on Orthodontia, or the Regulation of Teeth, extending through the whole year. Cases of irregular mouths, producing not only a repulsive appearance, but serious disturbances of speech and mastication, have been corrected with excellent resuts to the patient, both as to improved appearance and as to the power of masticating, with consequent benefit to the health. This, together with crown and bridge work, is a new departure. In the practical work of the School there is never any lack of patients, the nominal prices for dental work done by students under the careful supervision of skilled instructors proving sufficient inducements to many impecunious persons to come to us for their dentistry.

Beside the instruction in these two principal branches, there have been given to students of the second and third years, throughout the year, lectures by Professor Brackett in Dental Pathology; by Assistant Professor Briggs in Materia Medica; by Instructor Stanton in Oral Anatomy and Physiology; and by Demonstrator Moriarty in the Mechanical Treatment of Cleft Palates, Fractures and other lesions of the Jaw. Dr. Monks of the Medical School has also lectured on Surgical Pathology, Dr. Walton on Neurology, and Dr. Worcester on Dental Chemistry. All these lectures have been illustrated, so far as possible, by specimens, models, drawings and clinical demonstrations. The amount of didactic instruction has been as follows: —

Professor Brackett. Dental Pathology. 35 lectures.
" Fillebrown. Operative Dentistry. 30 lectures.
" Chandler. Mechanical Dentistry. 28 lectures.
Asst. Professor Briggs. Materia Medica and Therapeutics. 25 lectures.
Instructor Stanton. Oral Anatomy and Physiology. 28 lectures.
" Smith. Orthodontia. 30 lectures and clinics.
" Monks. Surgical Pathology. 10 lectures.
" Walton. Neurology. 6 lectures.
" Worcester. Dental Chemistry. 10 lectures and demonstrations.
" Hopkins. Crown and Bridge Work. 20 lectures and demonstrations.

In addition to his regular course, a very interesting and valuable evening lecture was given to the class by Dr. Stanton illustrating the progressive development of the teeth from the embryo to eruption by means of a stereopticon and some seventy lantern slides.

The professors of Operative and Mechanical Dentristry have each given one or more hours each week to clinical instruction in their respective departments. The demonstrators of Operative and Mechanical Dentistry, Drs. Clifford and Moriarty, have done efficient and faithful work in their respective departments. At the end of the year all the instructors and demonstrators were reappointed, with the

single exception of Dr. Bouvé who, after having given long and valuable service to the School, declined a renomination on account of failing health. Dr. Waldo E. Boardman was appointed to fill his place. Dr. A. H. Stoddard was appointed instructor in Mechanical Dentistry. Other volunteer instructors and assistants will be needed in this department the ensuing year on account of the great influx of students. Drs. Henry W. Gillett and Henry L. Upham were appointed instructors in the elements of Operative Dentistry to the first-year students in the places of Drs. Stoddard and Boardman, who have accepted other positions. The assistant demonstrators in Operative Dentistry have done excellent service in their specialty.

The steady increase in the number of our students renders continually more imperative the demand for quarters more roomy, better lighted, and in every way more suitable for our purposes. The operating-room especially is already greatly overcrowded, fully half of the operating chairs being placed at such a distance from the windows that the students are badly handicapped in their endeavors to do justice to their patients throughout the year, but especially in the short winter afternoons from November 1st to March 1st, comprising almost half the school year. An effort is making to obtain electric lights; but the expense seems to make it impossible. The same is true of the mechanical laboratory. But a very small proportion of the students have access to a proper light; and to a majority of them the performance of the best work is thus rendered unnecessarily difficult.

Last year the organization of the Society of the Harvard Dental Alumni was changed to correspond in plan and purpose with those of the Harvard Law School and Harvard Medical School Associations, and the name was changed to correspond. This was done with the desire and hope that its members, through a more intimate connection with, and a better realization of, the condition and needs of the School, might better aid us. The method has already worked so well with the Law School, and promises so fairly with the Medical School, that we have sanguine hopes of a similar benefit in our case.

Action has already been taken by the appointment of committees having these objects in view by both the association and the Dental Faculty, and it is hoped that the Report of another year may speak definitely of plans formed and action taken.

The value of the School as an educator of young men for a profession second only to that of medicine in bringing help to the suffering, and of its hospital for the gratuitous relief of pain, has seemed to be scarcely appreciated in our community. Thousands of teeth are

saved, lost organs of mastication restored, some of the most excruciating pains known to humanity relieved, broken jaws reset, cleft palates closed and the voice restored, — all those operations for which the prosperous seek the dentist, are here performed without price, except to cover the cost of the more expensive materials, such as gold and platinum. The high standard of the School necessarily limits the numbers of the students; for the great majority of young men who wish to study dentistry are impecunious, and naturally seek schools whose terms are not so long and whose examinations are not so hard.

The money obtained from the fees of the students does little more than pay the running expenses of the School, so that it is practically carried on by the public spirit of its instructors, who give their time and services at a pecuniary loss. Yet these gentlemen show their love of teaching and their regard for their Alma Mater by serving year after year, till press of business or the demands of their families call them away. An institution like this should have an endowment sufficient to enable it to retain competent and experienced instructors, and a proper building in which they may properly perform their functions. All this we hope to accomplish by the aid of our Association.

THOMAS H. CHANDLER, *Dean.*

THE BUSSEY INSTITUTION.

To the President of the University:

Sir, — I respectfully submit the following report upon the Bussey Institution for the year 1890–91: —

Instruction was given in Agriculture, Horticulture, Botany, Entomology, and Agricultural Chemistry by Messrs. Motley, B. M. Watson, Kidder, Tuttle, and Storer. The only unusual feature in respect to instruction was a certain amount of irregularity occasioned by serious and long-continued illness of one of the teachers. The number of students was twelve.

As has happened repeatedly in previous year, several of the students — sons of farmers — were unable to leave their homes and join the School early enough in the autumn to be registered upon the College Catalogue, which is published toward the close of November. From this cause the School does not get credit with the public for so large a number of students as actually atttend its exercises. This difficulty is one which must always attach in some measure to a School which seeks to attract students from farms in New England, for the

exigencies of farm and family life in our rigorous climate often make it imperative that young men competent to labor should remain at home during the early autumn to perform their part towards putting the farm to rights for the winter.

The School was strengthened in May, 1891, by the appointment of a well-known agriculturist, Mr. Edmund Hersey of Hingham, to be superintendent of the Bussey Farm, in place of L. E. Northway, resigned.

Arrangements have now been perfected in two of the houses upon the estate so that country boys of good mental calibre who are unable to pay out money for board and lodging while attending the School can be boarded at the farm in return for work done by them in the fields and stables.

Gifts of Horticultural Journals for the library were received from Mr. B. M. Watson, Jr.

F. H. STORER, *Dean.*

THE VETERINARY SCHOOL.

To the President of the University:

Sir, — I beg to submit herewith the ninth annual report of the School of Veterinary Medicine.

Of the three members of the third class all presented themselves for the final examinations, in which all were successful. There were six graduates, three from the third class, and three others who, for various reasons, had not previously qualified.

There are thirty-one students in the School, divided as follows: six in the third class, four in the second, seventeen in the first, and four in the special.

Of the increased number of applicants for admission to the School this year (18) all but one were successful, while in years past there have been instances in which fully one third of the applicants were not able to reach the then somewhat lower standard for admission. This fact seems rather to confirm the experience of last year, and to show that a fairly severe admission examination does not of itself diminish the number of students, and that it does improve the quality of those who offer themselves.

As a matter of fact, the following comparison will show that our list of subjects for the admission examination will now compare very favorably with that maintained at the Medical School so recently as 1889, and it is fully as severe a test as is imposed in any veterinary school in an English-speaking country.

Medical School.	Veterinary School.
Compulsory Subjects.	
English. — Every candidate will be required to write legibly and correctly, an original English composition of not less than two hundred words, and also to write English prose from dictation.	*English.* — Each applicant will be required to write legibly and correctly an English composition of not less than two hundred words. To write English prose from dictation and to read aloud a selected passage from ordinary English prose.
Latin. — Translation of easy Latin prose.	
Physics. — A competent knowledge of physics (such as may be obtained from Balfour Stewart's Elements of Physics).	*Arithmetic.* — The simple and compound rules, including decimal fractions.
Elective Subjects.	
Each candidate must pass an approved examination in any one of the following subjects: French, German, the elements of Algebra or of Plane Geometry, Botany.	Each candidate for admission must pass an examination in *one* of the following subjects: Latin, French, German (the translation of easy prose), the elements of Algebra, Plane Geometry or Zoölogy. (Botany is taught in the School.)

Perhaps the time has hardly yet arrived when public opinion would bear us out in making the entrance examination to the Veterinary School the same as that of the Medical School; but there is no doubt that until very recently the imposition of any such test as this, which we have now enforced for two years, would have been thought a very unwarrantable proceeding, and one which would drive all intending veterinary students from our doors.

It is not likely that the increase (50%) in the number of applicants for admission has any very significant meaning for us; for it seems as if all of the professional schools throughout the country have had some such experience this year; but still the fact that the increase has occurred in the face of such an array of obstacles to our quick growth as were mentioned last year, is encouraging: and a fair inference from the entire situation is that an increased attention is being directed to the veterinary profession as a reputable and profitable occupation for young men of education and ability.

Several important changes and additions have been made in the teaching staff during the year. Dr. Edward C. Beckett, Instructor in Operative Veterinary Surgery, has been advanced to the Faculty; Dr. Kenelm Winslow, Instructor in Materia Medica and Botany, has added an extended course in Veterinary Therapeutics to his other duties; Dr. Frederick H. Osgood of Springfield has been appointed instructor in Bovine Pathology; William O. Underwood, Esq. (A.B. Harvard) has undertaken a course of lectures in the School upon

Warranty and Evidence; and H. F. Leonard, M.D., M.D.V., a graduate of the School, has been appointed a Clinical Lecturer. Of Dr. Osgood's appointment, "The American Veterinary Review," the representative journal of the profession in America, says: "Dr. Osgood has accepted the instructorship of Bovine Pathology in the Veterinary Department of Harvard University. He will prove a valuable acquisition. Few men have had better opportunities for preparation in the work of his department, or are capable of doing better justice to the work of the post." In the same issue of the "Review" the editor, after describing the progress recently made in teaching methods "in most of the countries of Europe, and notably in France," says: "But it would seem that an important question has still been somewhat overlooked in omitting to provide for so essential a matter as the creation of a special chair of Bovine Pathology. It is, indeed, a most remarkable fact that such a special department has not been in existence from the first as a separate chair." In view of the great and growing interest in some of the diseases of cattle, and of their intimate relations to the human family as furnishing in milk and meat a large proportion of our food, through which some of their diseases may be, and are, communicated to human beings, this new appointment will prove to be not only of great advantage to our students, but through them to the communities in which they will hereafter practice.

The course now undertaken by Mr. Underwood is one that, it is believed, has never before been attempted at any veterinary school. It will "consist of practical talks upon the law of sales and warranty, and embrace also a general discussion of rules of evidence, with practical suggestions on expert testimony and the conduct of witnesses in court." With Legal Medicine as taught at the medical schools the practicing veterinarian has nothing to do; but in examining horses for soundness, in giving testimony in court both as a witness and as an expert, he is constantly brought face to face with questions concerning his own actions which are very puzzling in the absence of all knowledge of the subjects to be embraced in these lectures. The course will prove to be useful and interesting.

The cheerful and kind coöperation of Drs. Beckett, Lee, Winslow, and Soule, who work without increase of salary, and the appointment of Dr. Leonard, whose remuneration is nominal, make it possible for us to undertake in 1891–92, for the first time, a thorough course of instruction in Clinical Medicine. By this arrangement the Veterinary Hospital is now used much as hospitals for human beings are used by the medical schools. Each veterinarian gives from one to two hours upon a certain day of the week; this gives the students an

exercise every day in the week throughout the year, at which cases are discussed by an instructor, their history is heard, a clinical examination made, a diagnosis, prognosis, and treatment given, after a thorough exhibition and analysis of the several processes, both manual and mental. This exercise is popular among the students, and the instructors already greatly regret the limitations of the Hospital.

When the organization of the School was first undertaken, in the latter part of 1882, it was almost entirely without resources, except in the help which came from the Medical School and the Bussey Institution, and up to 1884 it had only two instructors under pay. It is now a School whose curriculum is second to none, whose influence is already widely felt, and whose example has been largely followed. There are now eleven instructors who are drawing salaries, and since 1885 its class-rooms have been in Boston, in a building erected for the purpose by the University.

The Veterinary Hospital. — For the twelve months ending October 31, 1891, 3011 patients have been treated at the Hospital. Of these, 1870 were "out-door" clinics (1330 horses, 490 dogs, 44 cats, 3 monkeys, 2 cows, and 1 mule) and 1141 were "in-door" patients at the Village Street building. Of these last 696 were horses, 418 dogs, 30 cats, 2 squirrels. In addition to these, 2813 horses were shod during the year.

These figures again show a considerable gain over the preceding year, and inasmuch as with them we complete something more than eight years of our existence, during which, absolutely without advertisement, there has been a steadily increasing patronage of the Hospital, it is fair to conclude that the institution is useful to this community, and that it has passed the experimental stage.

The question of the possibility of enlarging the Hospital, to which your attention was called a year ago, has received a considerable amount of consideration from officers of the University and the Visiting Committee of the Board of Overseers. In the first place, it was found that sufficient additional space for immediate needs could probably be secured in Village Street by purchasing two small dwelling-houses adjoining the Hospital, tearing them down, and putting up a new building on the land so obtained. The objections to this plan were, its great cost; the fact that further additions, of any sort that might be needed, would probably be even more expensive, even if they could be made at all; that the new premises would practically be an addition to a building which is not owned by the University, and of which it is now a tenant at will; and finally, that in view of

the probable further needs of the department, it would be unwise to increase the present investment in Village Street.

This decision left but two alternatives, namely: keeping on with the present very inadequate hospital accomodations, or the entire abandonment of the location and the erection of larger buildings upon land to be purchased elsewhere. This last plan, although very desirable, needs so much money and time for its accomplishment that it will not relieve the immediate necessities of the Hospital. Were it not for the probable bad effect on the School of a division of the establishment into two parts, suitable premises could be hired at once for the much-needed enlargement of the Hospital.

Finances. — The total earnings of this department for the year were $20,905.78. Of this amount the School earned only $2427, while its maintenance cost at least $5000. The Hospital, therefore, has paid for the School a deficiency of as much as $2573, and all its own running expenses, including salaries, wages, repairs and improvements on buildings, and has earned a surplus for the year of $329.90. That is to say, if the School were supported, as schools of the sort are in all other places where they exist, by endowment in one form or another, the Hospital, small as it is, would show a surplus of $2902.90 as a result of its work for the year.

The direct suggestion from this situation is the financial separation of the two divisions. This can be done in several ways, among which is the endowment of the School as a whole, or the endowment of some one or more branches of instruction, the salaries for which are now a charge against the general income. The salary list now amounts to $4756, and several of these salaries are only nominal compensation for the work done and must be increased from year to year if the instruction is to be well kept up and gradually expanded.

The Hospital finances would take care of themselves, and the University could easily rid itself of the work of carrying it on. If, however, it is thought that this separation would be unwise (and that is most certainly my own opinion), the Hospital already has sufficient patronage to enable it, if put into larger quarters, to help very materially in supporting the School for some time to come.

Since the establishment of the School of Veterinary Medicine in Harvard University other universities have undertaken similar establisements, until now the three-year graded course is maintained at the University of Pennsylvania, the University of Minnesota, and at McGill University in Montreal.

As indicating the progress made in this direction by the veterinary profession itself during the same time, it is proper to say here that at

the last meeting of the United States Veterinary Medical Association, held at Washington in September last, a resolution was offered by the Executive Committee, to be voted upon at the next annual meeting, that "hereafter all applicants for membership, except those now graduated or matriculated, must be graduates from colleges requiring not less than three annual sessions of no less than six months each, exclusively devoted to the study of veterinary science, and such colleges shall have a corps of not less than four distinctively veterinary instructors."

Further than this, the editor of "The American Veterinary Review," himself the principal of a two-year school, has recently written: "The days of private undertakings in the establishment of veterinary schools are coming to an end, and the institutions that now exist are destined to become in due time branches of university study, and placed under obligation to accept the laws and regulations of the parent curriculum. The two-years course of crowded studies, begun and ended in a few months, is doomed, and until these changes are realized the veterinary profession will never reach the standard to which it should aspire. We may possibly, from these expressions, be accused of a change of opinion, from having some time since uttered doubts as to the propriety of a similar amalgamation, but we cannot continue blind to the signs of modern progress."

CHARLES P. LYMAN, *Dean.*

THE LIBRARY.

To the President of the University:

Sir, — The report of last year was in the main made conjointly by the principal subordinate officers of the Library, as I left Cambridge July 1, 1890, for a year's absence. The present report must be made from the Library's records and from the information obtained from such officers; because I did not resume charge of the Library till the year which this report covers had expired.

Three numbers of the *Bulletin of Harvard University* have been issued under the immediate charge of Mr. Lane during the past year. Of the *Bibliographical Contributions*, also issued separately by the Library, four have been published, namely: No. 39, *A Bibliography of Beaumont and Fletcher*, by Alfred Claghorn Potter, of the Library staff; No. 40, *Index to Recent Reference Lists, No. IV., 1890*, by W. C. Lane, Assistant Librarian; No. 41, *Seventh List of Publications of Harvard University and its Officers, with the Chief Publications*

on the University, 1889–90, by W. H. Tillinghast, Assistant Librarian; No. 42, *The Orators and Poets of Phi Beta Kappa, Alpha of Massachusetts, 1782–1890*, by Mr. Tillinghast.

Number II. of the *Special Publications of the Library of Harvard University* was so near completion at the end of the Library year that at the date of this report it is published, and may accordingly be included in the work of the year. This is an *Index to the Subject Catalogue of Harvard College Library*, upon which Mr. Lane has been at work since 1886, while his labors in systematizing the Catalogue itself so that such an index could be well made were begun in 1882–83. Such a number of copies as were needed for the use of the Library were printed in octavo form, double column, 170 pages. As it is the most complete list of topics which has yet been printed, it was thought that it might be of some service in other libraries; and so two hundred copies were struck off, by permission, for the Library Bureau in Boston (and at its expense), where they are now for sale. The list includes about 15,000 topics, and this number is swelled by cross-references to about 22,000 entries. It excludes proper names and the scientific appellations of animals, plants, and chemical or medical substances. The arrangement of the Subject Catalogue of this Library is peculiar to it, and on a system which was devised by the late Dr. Ezra Abbot. He sought to preserve the advantages of a classified catalogue with those of an alphabetical scheme. So the comprehensive subjects in it appear in an alphabetical order, and the subdivisions of these subjects are also arranged in an alphabetical sequence. This alphabet within alphabet is confusing to anyone not accustomed to the Catalogue, and such a person gains little advantage from his experience with other simple alphabetical or classified catalogues. Two classes of persons have been accordingly usually perplexed in attempting to use our Catalogue. First, those who, having become used to the sections devoted to departments of learning in which their studies generally lay, were puzzled when they attempted to explore unwonted fields; second, those who had no experience with any part of the Catalogue and came here with other preconceived notions of catalogue arrangements. Further than this, even for those who understood its principles, to be expert in consulting it needed constant familiarity with it.

When it was determined to render the use of the Catalogue easier by supplying an index, and to exclude proper names of persons, it became necessary to transfer from the Subject Catalogue to the Authors' Catalogue large bodies of personal subjects, that they might naturally fall into the alphabetical order of the latter catalogue. These classes comprised individual biographies and criticisms on au-

thors, which had stood in the Subject Catalogue under "Biography" and "Bibliography"; the classical writers, arranged there under the two divisions of Greek and Latin, and the Fathers of the Church similarly arranged. All these individual entries now stand in their proper alphabetical place in the Authors' Catalogue.

Each main heading of the Subject Catalogue was given a number, gaps being left for new headings, and subdivision was rendered prospectively easy by employing a decimal system of notation. The drawers were marked on the outside with the range of numbers covered by the cards inside; and against each item in the *Index* its particular number in the Catalogue has been given, so that the user of the *Index* can be directed to the particular drawer containing the cards on his subject. In the case of subjects known by a variety of names, reference is made in the *Index* from each name to the one adopted in the Catalogue, and in closely related subjects cross-reference are also freely made back and forth. The *Index* ought to be of great assistance in facilitating the use of the Library.

The accessions to the University Library for the year, and the present extent of the various departments, are as follows: —

Principal Departments.	Volumes added.	Present extent in	
		Volumes.	Pamphlets.
Gore Hall (College Library) .	9606	291,526	278,097
Law School	841	24,498	3,191
Scientific School	30	2,738	800
Divinity School	1567	23,200	3,617
Medical School	8	210	. . .
Museum of Zoölogy	705	21,989	13,294
Astronomical Observatory . .	237	6,989	7,678
Botanic Garden	162	5,678	3,621
Bussey Institution	50	2,150	1,050
Peabody Museum	70	1,208	1,322
Totals	13,276	380,186	312,670

If to this total of 380,186 volumes be added the 7522 volumes of the permanent collections in the laboratories and class rooms, (see below) we have a grand total of 387,708 volumes for the University Library.

The Whitney Library of Geology, a component part of the collection in the Museum of Zoölogy, is only in part included in the count of the Museum Library; while on the other hand no deduction has

been made in the general library for volumes parted with on exchange account.

The Medical School depends upon the Collections of the Boston Medical Library Association, kindly thrown open to its use.

The present extent of the laboratory and class-room libraries is as follows:

	Permanent.	On Deposit.	Totals.
Laboratories.			
1. Chemical	495	. .	495
2. Zoölogical	140	. .	140
3. Geological	27	. .	27
4. Meteorological	56	. .	56
5. Botanical	638	. .	638
6. Physical	. .	326	326
7. Physical Geography	172	141	313
8. Mineralogical	93	141	234
Class-Rooms.			
1. Classical	2089	185	2274
2. History	570	1	571
3. United States History	747	. .	747
4. Political Economy	562	. .	562
5. Mathematics	188	136	324
6. French	555	. .	555
7. English	34	. .	34
8. Sanskrit	22	. .	22
9. German	307	. .	307
10. Social Questions	423	. .	423
11. Music	54	. .	54
12. Philosophy	186	. .	186
13. Semitic	220	. .	220
Totals	7,522	930	8,452

An assistant is sent from the Central Library every week to examine the shelves of these libraries by the shelf-lists, and the titles of missing books are reported at once to the officer of instruction in immediate charge of the library where such loss or misplacement has been discovered. Temporary loans of books from Gore Hall are made to these libraries to facilitate the instruction of the several departments. In 1890–91 four of these libraries were open evenings for use when Gore Hall was closed.

Of the accessions to the Gore Hall Collections there were added by gift 4781 volumes and 10,400 pamphlets; and the accessions also include 855 volumes of bound serials (received in parts), and 691 volumes made by binding pamphlets.

The accessions of recent years to the University Library (excluding the laboratory and class-room libraries) have been as follows: —

In 1879	10,389 vols.	In 1886	9,191 vols.
" 1880	7,247 "	" 1887	11,924 "
" 1881	9,804 "	" 1888	16,468 "
" 1882	9,192 "	" 1889	12,253 "
" 1883	9,818 "	" 1890	16,051 "
" 1884	12,360 "	" 1891	13,276 "
" 1885	14,558 "		

The following table shows the use of books at Gore Hall in 1890–91 as compared with previous years: —

	1884–85.	1885–86.	1886–87.	1887–88.	1888–89.	1889–90.	1890–91.
1. Books lent out . .	52,322	60,195	62,861	65,639	68,892	74,906	70,036
2. Used in the building	9,433	8,816	12,041	15,267	14,299	17,203	15,861
3. Overnight use of reserved books .	13,791	18,505	20,052	20,360	21,802	24,989	21,706
Total (excluding No. 3, which is incl. in No. 1)	61,755	69,011	74,902	80,906	84,191	92,109	85,897
No. of books reserved	5,230	5,840	6,280	6,549	5,848	6,215	6,253

The extent of the number of books reserved — of whose hall-use no record is kept — has a tendency to decrease the number of volumes used in the building, of whose use record is made. The establishment of class-room libraries, much increased during the past year, has also induced a diminution of the figures for 1890–91 against the classes marked in the above table as 1, 2, and 3. It is the observation, however, of those in charge of the reference service, of which no statistics are kept, that it is constantly increasing, year by year, and that the increase for last year was very great. In addition to the books reserved by instructors, now amounting to 6253 volumes, there are in the reading-room 1661 volumes carefully selected for students' reading by the instructors in their several departments. Of these, 1150 are English, 348 French, 119 German, and 44 Italian. The use of these books is not governed by the restrictions applied to reserved books, but the books may be taken out as other books are.

In the Delivery Room are 5546 volumes, all of which are accessible to students. Of these, 3198 volumes are bound periodicals which may be taken out as seven-day books, and 2348 volumes are for reference only, comprising dictionaries, encyclopædias, and the most useful books of reference in all departments.

The number of students of the "Annex" who have borrowed books during the past six years is shown in the following table: —

BORROWERS FROM THE "ANNEX."

Years.	1885–86.	1886–87.	1887–88.	1888–89.	1889–90.	1890–91.
1. Borrowers	44	58	66	72	84	82
2. Books borrowed . . .	992	1,230	1,545	1,531	1,329	930
3. Reserved books . . .	223	383	301	299	286	284

The figures in the third class are included in class no. 2.

The following table shows for a series of years the use made of "Admission-Cards," by which students have access to special classes of the books for investigation at the shelves: —

ADMISSION–CARDS.

	1882–83.	1883–84.	1884–85.	1885–86.	1886–87.	1887–88.	1888–89.	1889–90.	1890–91.
History . .	46	45	52	68	74	71	81	53	36
Science . .	16	18	12	14	12	14	9	6	8
Art(incl.Music)	14	12	14	16	13	16	24	19	15
Literature .	42	37	42	49	62	54	27	32	38
Classics . .	36	42	53	52	47	42	24	22	18
Philosophy .	5	6	8	9	8	9	16	9	12
Theology . .	3	8	9	12	15	11	6	4	8
Polit. Econ. .	5	8	12	44	64	49	25	13	9
Total students	167	176	202	264	295	266	212	158	144
Times of use	3,340	3,520	4,020	5,820	7,375	7,980	8,390	6,490	2,512

It was deemed necessary during the course of the year to put this privilege of access to the shelves under further restrictions, and in February, 1891, the Library Council issued the following circular: —

To Officers of Instruction: — The Library Council have adopted the following regulations concerning admission to the shelves.

Hereafter no person receiving instruction in the College will be given a card of admission to the shelves except upon presentation of a prescribed form of recommendation signed by his Instructor in the subject for which the permit is desired.

Instructors can obtain forms of recommendation at the Library, but none will be issued to students.

The Council wish to remind Instructors of the importance of exercising care in granting recommendations. Admission to the shelves is not designed to provide students with a new resort for general reading, or to

enable them to avoid drawing books through the regular service at the Desk, or to gratify even legitimate curiosity in books; it is a power given to Instructors whereby they can prescribe for their more interested students lines of work which could not be carried on under the ordinary rules of the Library. It is, moreover, a privilege which necessarily interferes somewhat with the regular service of the Library, and one that, when granted too freely, operates by loss and misplacement of books against the good of the greater number of readers. Instructors are, therefore, requested not to grant a recommendation unless the privilege seems to them in the proper sense necessary, and the applicant understands and is willing to abide by its limitations.

STUDENTS' USE OF THE LIBRARY.

Students of	1885–86.		1886–87.		1887–88.		1888–89.		1889–90.		1890–91.	
	Whole No.	No. taking books.	Whole No.	No. taking books.	Whole No.	No. taking books.	Whole No.	No. taking books.	Whole No.	No. taking books.	Whole No.	No. taking books.
Divinity . . .	25	25	20	20	16	16	26	26	36	36	41	36
Law	154	136	180	108	215	175	217	138	254	151	279	147
Scientific . .	22	18	14	10	20	18	35	21	65	37	88	42
Resident Grad.	64	62	56	54	83	76	85	74	93	81	110	92
Senior Class .	232	214	239	231	237	234	214	206	278	254	289	260
Junior Class .	236	228	238	215	214	209	252	249	244	232	254	242
Sophom. Class	232	216	224	206	281	234	264	238	282	253	289	245
Freshm. Class	258	201	280	195	295	229	309	215	323	215	366	217
Sp. Students .	. .	. .	. .	. .	. .	. .	. .	. .	144	100	141	123
Totals . .	1231	1100	1251	1039	1331	1191	1402	1167	1719	1359	1857	1404

The percentage of users among the undergraduates during recent years is given in the following table: —

	1879–80.	1883–84.	1884–85.	1885–86.	1886–87.	1887–88.	1888–89.	1889–90.	1890–91.
Seniors.	88	90	90	92	96	99	97	91	89
Juniors.	83	88	93	96	90	98	99	95	95
Sophom.	83	85	86	93	92	94	90	90	84
Freshm.	65	80	80	78	69	77	69	67	59

Fifteen years ago only 57% of all the College students used the Library. In the last year, of the 1198 undergraduates only 234 failed to borrow books, and most of these probably used the reserved books in the Reading Room. The libraries of the class rooms and laboratories, as well as those of the students' clubs, doubtless provide reading, special as well as general, for a considerable number of undergraduates.

These statements do not cover the use of "reserved books." Nor is there any record of the use made of the 572 periodicals, current numbers of which are on file in the Reading Room.

The number of persons registered and entitled to take books away from the Library building is as follows: —

Students	1,567
Instructors	142
Others	318
Total	2,027

SUNDAY USE.

	1882–83.	1883–84.	1884–85.	1885–86.	1886–87.	1887–88.	1888–89.	1889–90.	1890–91.
Days open .	36	36	37	37	37	37	37	37	37
Users . . .	2,268	2,448	2,631	2,842	2,880	2,894	3,024	3,089	3,104
Average . .	63	68	71	76	77	78	81	83	83
Highest no.	92	95	105	108	118	106	108	118	132

Mr. Frank Carney, who under Mr. Tillinghast has charge of the shelves, reports that 4040 volumes have been permanently placed in the new stack since the last report, making 119,847 so placed out of the volumes constituting the Gore Hall collection.

Mr. Carney verified the shelf-lists of the classifications in the stack, between the 10th of August and the 9th of September, showing about 160,000 volumes. The number of volumes which failed to be accounted for was 175. Of those reported missing in previous years 62 were found in their places, having been silently returned during the year. Seven of these were reported missing as far back as 1883. Of books reported missing since 1883 there are still 402 unaccounted for; 255 having disappeared from the reserved books, and 147 from the stack. Of these 175 unaccounted-for volumes of the year just closed about 133 have disappeared from the books of reference, reserved books, and other collections exposed to the handling of all frequenters of the Library, the other 42 having disappeared from the shelves to which only the staff of the Library, officers of the College, and a limited number of other persons have access.

In the stack, particularly in those sections most frequented by holders of "admission-cards," many cases of disarrangement were discovered, 212 books being found on wrong shelves. Such misplacement always causes delay in finding books, and in the case of books placed on a wrong shelf is equivalent to actual loss. It is clear that facility of access to the shelves causes results which in the interest of the greater number of users should be counteracted. Reference has already been made to steps taken last February.

Some of the losses above enumerated may be due to thie
persons not connected with the University. Just in proportic
liberality with which the Library is administered, are the op
ties for such pilfering increased. To check it would require
tions, such as are common in the great libraries of Europe, b
would be deemed vexatious in this community. Other loss
from carelessness and a lax sense of propriety in member
University. A traditional and discreditable propensity on th
students to screen the wrong-doing of their associates depr
Library of the aids to detection, which the public at large
in the outside world.

Mr. Lane, Assistant Librarian, furnishes the following repo
work of the Catalogue department: The total number of tit
logued for the College Library in Gore Hall during the year (1
has been 7494 (against 7692 last year), and for the various
ment and class-room libraries 2654 (against 1438 last year).

The work of the past year may be compared with the work
years as follows: —

	1883–84.	1884–85.	1885–86.	1886–87.	1887–88.	1888–89.	1889–90.
1. Gore Hall cards prepared	21,524	30,968	32,580	29,229	23,696	21,256	24,3
2. Titles catalogued for departments	. .	. .	957	1,021	1,291	1,721	1,4
3. Volumes received in Gore Hall	9,879	12,442	6,730	9,108	10,885	9,045	13,1
4. Approximate hours' work of the assistants of the catalogue department .	24,241	22,231	23,020	22,113	20,696	18,293	18,8

The use of printed cards in the public card catalogue has
6658 having been printed, against 7889 for last year. Inas
these cards are made by using the type of the *Bulletin*, i
those titles which are entered in the list of accessions there
all the recently published books and pamphlets but only t
extensive and important works of earlier date,) that can be
on cards. All others, or about two thirds of the accession
year, are still catalogued on written cards.

It will be noticed that fewer cards have been written with
aggregate of hours' work in the department. This arises ma

the breaks in progress occasioned by drilling three new assistants. We have undertaken to analyze systematically the current volumes of certain society transactions and similar publications, and for this purpose we have used cards on which the title of the publication has been already printed, thus reducing the clerical labor to some extent. Besides the obvious advantage of better indexing the Library, which such analyzing accomplishes, it not infrequently prevents buying papers in a separate issue, which the Library already possess in a set of transactions. So far as the new accessions go, for which we have printed cards, it has been easy further to increase the effectiveness of the Catalogue in the case of volumes of collected essays and the like, by multiplying these cards and inserting one under each head treated in the book.

We have made new arrangements lately by which a more regular supply of dissertations from the German universities will come to us. Those relating to historical, biographical, and philological subjects are treated as books. Those falling naturally into medical and scientific classifications are temporarily placed in the pamphlet files, pending the rearrangement of the scientific part of the Library. These last number at present 780, but this number does not include the chance accessions of former years, which can be found in the same files under the author's name. The more technical ones, relating to astronomy, systematic botany and zoölogy, have been sent of late, as they have come in, to the libraries of the Observatory, Herbarium, and Zoölogical Museum, respectively. I have hopes that when the Boston Medical Library Association erects a new building, the medical section of these dissertations can be sent to that library, together with the Boylston Collection of old medical books, to recompense that association for permanent privileges in their library, granted to the Medical School of the University. Considering the existence of that library and of the medical section of the Boston Public Library, it does not seem desirable to maintain more than a small working collection, principally of current periodicals, in connection with the Medical School.

The number of volumes waiting to be catalogued October 1, 1891, was 4536. This number includes 430 in the cataloguers' hands, and 556 not yet passed on from the collating room; while the balance is made up of the remnants of the considerable Gurney and Moehring gifts, not yet catalogued, and a few smaller lots laid aside for work more pressing. The scant space in the Library for handling large gifts of books obliges the staff to work on such gifts in small lots. Any display of them on tables in large masses is prevented by the recurrent arrival of invoices of fresh books which require prompt attention.

The work of the Ordering department, in charge of Mr. Tillinghast, is shown in the following statement: —

At the close of the Library year the estimated cost of orders then out (including "continuations," reckoned at $6406) was about $11,260, and it was expected that about $6060 of these would come in, to be paid for during the coming year. We have an income for the next year of about $18,460; against this amount must be set off about $8960 (that is: orders out, $6060; periodicals and binding, $2500; freight, $400), leaving a free balance of $9500. It is further to be considered that some of the items included in our annual book-income are funds with such specific objects that they must be left out of view in providing for general purchases.

The following table contains a summary of our financial condition during six years: —

	1885–86.	1886–87.	1887–88.	1888–89.	1889–90.	1890–91.
Income for books *	$16,245	$19,341	$20,407	$19,881	$16,682	$16,565
Spent	13,923	14,549	16,062	17,347	15,172	13,905
Balance	2,321	4,791	4,345	2,534	1,510	2,660
Appropriation . .	none.	17,500	19,000	20,050	15,480	11,920
Unpledged balance	7,180	12,032	12,080	11,238	5,672	9,602

The balance of $1510 for the year 1889–90 was nominal, existing only by reason of unpaid bills held over at the end of the year. These were settled soon after the opening of the year 1890–91, and in consequence, the appropriations were proportionately reduced.

PAYMENTS AND PURCHASES.

Years.	Income, exclud. balance brought forw'd.	Payments.	Vols. bought.	Vols. of serials added.	Sum of last two columns.
1884–85	$15,094	$16,534	5,932	560	6,492
1885–86	15,332	13,923	3,032	682	3,714
1886–87	17,052	14,549	4,490	746	5,236
1887–88	15,732	16,061	5,389	798	6,187
1888–89	15,799	17,339	4,925	638	5,563
1889–90	15,275	15,137	4,168	838	5,006
1890–91	15,391	13,905	3,230	855	4,085

The figures in the column of "Payments" are taken from final figures of the Treasurer's Report, which may in a slight way differ from the accounts kept in the Library, the figures of which appear against the item "Spent" in the previous table.

* The items of income include unexpended balances of the previous year.

ESTIMATED AMOUNT IN DOLLARS OF ORDERS SENT TO AGENTS.

	1886–87.	1887–88.	1888–89.	1889–90.	1890–91.
American	987	1,300	1,200	895	724
English	2,380	2,150	2,500	2,043	1,334
French	1,282	1,035	910	1,234	585
German	2,170	1,950	2,450	1,401	1,139
Italian	225	112	325	200	111
Scandinavian	21	56	106	52	50
Totals	7,048	6,805	7,459	6,276	4,161

Lesser agencies are not noted in this table, but are included in the totals. The division among agents gives only an approximate representation of division by languages, since books in all languages may be bought in London, as Spanish and South American books usually have been, and Slavic books are mainly bought through the German agency. We usually buy more titles in German than in any other language.

The following table indicates for five years past the extent and variety of orders dealt with by the Ordering department, and shows that more than 14,000 slips are arranged and kept in mind in the daily work of those in charge of this department: —

Order slips on hand October 1.	1887.	1888.	1889.	1890.	1891.
Book orders out	1,539	2,112	2,875	1,242	2,350
Continuation orders out	1,819	1,951	2,163	2,272	2,400
Total active orders	3,358	4,063	5,038	3,514	4,750
Cancelled orders.	6,400	6,800	7,200	7,675	8,600
Deferred orders	488	541	533	1,488	942
Countermanded orders	. .	. .	. .	943	. .
Slips for reference use	136	124	130	234	. .
Slips of little value	76	76	76	76	. .
Grand total	10,458	11,604	12,977	13,930	14,292

The estimated cost of continuations, which is a fixed liability for our book funds, — though only about one-half of the charges is likely to be actually incurred each year, owing to the irregularity of such serials, — has been growing rapidly of late years, as will be perceived from the following table: —

Year.	Estimated cost of continuations.	Total estimated cost, books and serials.	Continuations.
1880–81	$2,008	. . .	. .
1881–82	3,336	$12,345	. .
1882–83	4,567	15,956	. .
1883–84	4,821	20,495	1,422
1884–85	4,828	17,764	1,536
1885–86	5,163	14,228	1,637
1886–87	5,102	14,375	1,819
1887–88	5,770	14,855	1,951
1888–89	6,079	16,104	2,163
1889–90	6,191	17,186	2,272
1890–91	6,406	11,124	2,400

It needs to be stated respecting the last column that it includes continuations for class-room and other libraries, while the figures for the other columns make no account of the cost of such. These class-room serials have not been of any extent till recently. Eighty-seven serials have been dropped from the list during the past year, and yet there is a net gain in numbers. The number also increases from the necessity of keeping up imperfect sets, which we receive by gift; and from an effort to complete sets which in years past were suffered to fall into arrears, though all of these have not yet been put in our orders.

Mr. Tillinghast adds: "The percentage of continuations on which nothing has been received during the year is nearly 60% from all agents. I have in practice allowed for about one half to come in."

Our three principal foreign agents, in London, Leipzig, and Paris, procured for us books in the following proportions to their orders: Harrassowitz, 80%; Reinwald, 86%, and Kegan Paul, 84%. Within the last few years there has been a considerable improvement in the assiduity of our principal agents. In 1883–84 they only procured 64% of our orders. It appears that we receive yearly about 9 English shipments, 9 German, 5 French, 3 Italian, and 1 Scandinavian.

The following table shows the number of books recommended at Gore Hall for purchase, the number of these already in the Library; the number ordered (including those reordered), and of these last the number for which there was reason for haste in transmitting the order: —

	1888–89.	1889–90.	1890–91.
Recommendations	4,904	4,404	4,545
In the Library	1,347	819	711
Ordered	3,056	2,505	4,863
In haste	165	128	122

It must be understood that the figures in a column have no relation to other figures in the same columns, for books may be recommended in one year and ordered in the following year, etc.

Mr. Tillinghast says in his report, while referring to the reduction of orders for the College Library: "The comparative small amount of business done by the Ordering department for the College Library was more than offset by the extraordinary demands made upon us by new class-room libraries. During this year class-room libraries were formed in the Classical, Philosophical, Historical (as distinct from American history, which already had a class-room library), and Musical departments. The result was that while we ordered but $4161 in books for Gore Hall, we ordered $5330 for the departmental and class-room libraries, of which amount $3293 was ordered for the Classical department library. For this amount of work, as for the cataloguing involved in it, no charge is made against these libraries; but a division of charges for freight is made, and the share of these libraries in it is paid by each."

GIFTS.

Years.	Vols. and pamphlets.	Proved to be duplicates.	Put on shelves.
1883–84	11,868	4,348	7,520
1884–85	12,784	5,288	7,496
1885–86	8,538	2,554	5,984
1886–87	7,989	2,437	5,544
1887–88	9,649	2,506	7,143
1888–89	9,815	2,835	6,980
1889–90	12,073	3,354	8,719
1890–91	9,992	2,257	7,735

Mr. Henry C. Badger, Curator of Maps, has made the following report: —

The cataloguing of the large collection of maps in portfolios was begun nearly seven years ago. A year was spent at first in bringing together the maps, then dispersed in many parts of the Library, as well as in arranging the various editions and parts of maps and placing them in proper portfolios, duly stamped and numbered. Something more than a year was then consumed in preparing a subject index of the maps, which has since been bound in four volumes. This required a study of topics and of the ground covered by each map, not only those contained in the portfolios but also those in atlases, and such single maps as stand on the shelves as books or are kept on rollers. Maps in books, if only illustrative of the text, were

not included. No beginning has yet been made in preparing a list of the uncounted thousands of such maps; but in due time this needs to be done.

Probably in no other particular does this Library so greatly surpass all other libraries in America as in its cartographical resources in the older maps. The collection of the later government maps and charts has many deficiencies, and a list of these will be shortly prepared. The Map department is without any special funds to apply to its growth; and without this aid it is likely to lose ground in its prominence among such repositories. It might well be expected of the Library that it should keep pace with modern cartography; but without such help it cannot. The field is no narrow one. The new government map of Germany on a scale of $\frac{1}{25000}$ numbers 5200 sheets. If the geologic and geodetic survey of the United States now in progress is ever completed, it may well surpass in extent of sheets the entire number of maps now in the College Library. The accommodation for the map collection in its present imperfect condition is inadequate, and the problem of better conveniences for storing and showing maps is but one of the demands, yearly increasing in weight, for an enlargement of the Library building.

The collection of roller maps numbers 215; that of atlases 708 volumes; and there are probably a thousand and more folded maps, in cases, which are now enumerated among the books.

In addition to the subject index which has been mentioned, a first draft has been made of a catalogue of the maps and charts in portfolios. This list shows 7939 titles, embracing 11,975 sheets, of which 872 are duplicates. In 1884, 85 titles covering 2255 sheets, were bound up, because of their continuity and these are now counted with the atlases.

Mr. John H. Storer, Curator of Coins, reports a completion in a first draft of the work of cataloguing the coins.

In closing this report I may revert to a matter, which has been emphasized in my reports for the last two years, — the inadequacy of the present Library building in regard to storing the books and in furnishing facilities for their use.

We have reached a point when immediate action is necessary to avoid in a year or two a confusion almost inextricable. The arrangement of that portion of the Library now in the stack is already confused to a degree that is perplexing for our pages in finding the books. This results from the makeshifts to which we resort in some of the classifications to find room for accessions. It is well to remember

that at present this confusion works greatly to the Library's detriment. By actual note of the average time necessary to get a book three years ago and to-day, it is evident that nearly double the delay is experienced now. It is feared that another year will double the present delay. There are 600 shelves already full, and the increase of the books assigned to their classifications requires some temporary expedient. The stack would hold perhaps 60,000 more volumes, but the space, sure to be demanded for their proper classifications, is not conveniently placed for the increase of other classifications. A range being the space between upright partitions, there are five ranges full to overflowing in the section given to American books, and these books increase at the rate of two ranges a year. There is a similar exigency in the rows (one side of a passage, divided into nine ranges) devoted to Folk Lore.

The rough classifications which we are using for books (largely of Science) which are ultimately to find place in the old Gore Hall when remodelled, have outgrown the temporary places which we can find for them.

There are eighty ranges yet left without a book and they will hold 16,000 volumes packed tightly; but they are not available for relief without increasing the disorder in the grouping of the Library to an extent which will check seriously its usefulness.

Of the current accessions to the Library about two fifths find their lodgement in the stack, where books are considered to be permanently placed; and three fifths go into the temporary classifications. These have to be shifted about from time to time for room, but would find permanent locations if the Library was enlarged. We add on an average about 12,000 volumes a year.

This statement leads to the conclusion that two years time will bring us to an absolute repletion; and the embarrassment now existing from being so near that condition increases day by day. I see no way to avoid the calamity, which will be upon us before long, except by some immediate action to increase the capacity of the building.

There is some space in the cellar of the original Gore Hall, which could be used, though not conveniently, and in this way perhaps 10,000 volumes, packed closely, could be provided for; but without artificial light the books could not be found when wanted.

In respect to table and chair room, we have exhausted all expedients without satisfying the demand. Some relief has been got by the creation of class-room libraries, but these are maintained in scattered places with more or less hazard to the property. A large reading-room, lighted from windows placed so high up as to reduce

the evil of cross-lights to a minimum, is necessary for the ordinary concourse of users of the Library. If this room were surrounded by a number of subsidiary rooms, built like lean-tos about the main room and opening into it, supervision would be reduced to least cost, and both the general and the subsidiary collections would gain increased usefulness by complementing each other. A suggestion of this kind made by me, on invitation, to the Trustees of the University of Pennsylvania was carried out in their new library building. With that university, and Cornell, Michigan, Princeton, and Yale availing themselves of better methods of library construction, Harvard is left undesirably in the rear.

JUSTIN WINSOR, *Librarian.*

NOVEMBER 18, 1891.

THE HERBARIUM.

TO THE PRESIDENT OF THE UNIVERSITY:

SIR, — The following report upon the Gray Herbarium of Harvard University is respectfully submitted: —

The accessions of specimens to the Herbarium during the past year have been large. From various parts of the United States about 1550 specimens have been received, including 379 plants from northern Michigan, presented by Mr. O. A. Farwell of Ypsilanti, and 260 Texan plants from the Herbarium of the Agricultural Department; from Canada, 668 specimens, including a purchased set of *Hepaticæ* (276), the remainder being chiefly from Professor John Macoun of the Canadian Geological Survey; from Mexico, 1135 specimens, mostly of Pringle's collection or by gift from the United States Agricultural Department; from Guatemala, 539 specimens, collected by John Donnell Smith, Esq., of Baltimore, and presented by him; from the West Indies, 146 St. Vincent plants, given by the Kew Herbarium; from South America, 458 specimens (purchased), collected by Bang in Bolivia and by Dr. T. Morong in Chili and the Argentine Republic; plants of South Europe and North Africa, 530 specimens, from the Cosson Herbarium, Paris; a valuable set of Gottsche's European *Hepaticæ*, 658 specimens (purchased); from the Cape Colony, 100 specimens, presented by P. MacOwan of Cape Town; from Arabia, 142 specimens of Dr. Schweinfurth's collection, the gift of William Barbey of Valleyres, Switzerland; of New Zealand and Corean plants, 163 specimens from the Kew Herbarium; from Tibet and North China, a nearly complete set of the rich collections made by Dr. Henry in that newly explored region, of about 4000 specimens (purchased); also a very valuable set of grasses, 782 specimens, from the herbarium of

the English agrostologist, Col. William Munro, presented by W. T. Thiselton Dyer, Director of the Royal Gardens, Kew, and about 2000 specimens of grasses selected from the Thurber Herbarium, of which mention was made in the last report. The total number of specimens received from all sources is about 13,000. The number of specimens that have been mounted upon sheets and distributed into the herbarium cases is 10,595. In addition there has been received from Kew a considerable portion of the large herbarium left by the late John Ball of London, to which reference was made in the last report, and the work of distribution and selection has been commenced. Arrangements have been made by which this distribution will involve little or no expense to this Herbarium.

The general condition of the Herbarium is, on the whole, as satisfactory as last year. The continual increase of material is gradually filling the cases to repletion, but the necessity for additional room is not immediate. To protect the collections from the ravages of insects the sole reliance until very recently has been the poisoning of the plants with corrosive sublimate, or, within the last few years, with arsenic acid, a process requiring no little time and labor. This has, however, in many cases proved ineffectual, and there is also the danger of serious injury to the health of any persons engaged in the Herbarium who may be specially susceptible to mercurial or arsenical poisons. On these accounts it has seemed to me best to give up this method of treatment altogether, trusting rather to the tightness of the cases for security.

The library has been increased by 165 volumes and 167 pamphlets. Of these additions 84 volumes were obtained by purchase. During the past year the library has been to a large extent rearranged by subjects, and there has also been much done in the way of cataloguing and indexing by authors and subjects, and in the indexing of illustrations. This work will be continued as circumstances may permit.

The publications from the Herbarium have been as follows: —

By the Curator:

On the genus *Eriogynia*. Bot. Gazette, 15. 241–242, with plate.

The relation of the Mexican Flora to that of the United States. Proc. Amer. Assoc. 39. 291–292.

Description of some new North American species, chiefly of the United States, with a revision of the American species of the genus *Erythronium*. Proc. Amer. Acad. 26. 124–131.

Descriptions of new Mexican species, collected chiefly by Mr. C. G. Pringle in 1889 and 1890. Same, 26. 131–158.

Upon a wild species of *Zea* from Mexico. Same, 26. 158–161.

Notes upon a collection of plants from the Island of Ascension. Same, 26. 161–163.

By Dr. B. L. Robinson:

Two new plants from the Cascade Mountains. Bot. Gazette, 16. 43-45, with plate.

Two undescribed species of *Apodanthes*. Same, 16. 82–84, with plate.

On *Silphium laciniatum*. Same, 16. 114–115.

Descriptions of new plants, chiefly *Gamopetalæ*, collected in Mexico by C. G. Pringle in 1889 and 1890. Proc. Amer. Acad. 26. 164–176.

Various reviews and notices in the American Journal of Science.

In addition to work done upon the "Synoptical Flora," by the Curator, a new edition of Dr. Gray's Field, Forest, and Garden Botany is in course of preparation. This task has been entrusted to Professor C. R. Barnes of Madison, Wisconsin.

Opportunity to use the resources of the Herbarium is freely accorded to any suitable person who desires to take advantage of them. During the past year the following botanists have visited Cambridge for this purpose, and spent considerable time at the Herbarium in various lines of research: Dr. George Vasey, Botanist of the U. S. Agricultural Department, and Professor W. J. Beal of Michigan University, in the study of grasses; John M. Coulter, President of the Indiana State University, and John Donnell Smith, Esq., of Baltimore, in the determination of Guatemalan plants; Professor J. Macoun of Ottawa, in studying Canadian plants; J. N. Rose of the Agricultural Department, upon Mexican plants; Professor L. H. Bailey of Ithaca, N. Y.; Professor L. M. Underwood of DePauw University, Indiana, in the study of *Hepaticæ;* and Mrs. E. G. Britton of New York city, in the study of mosses.

SERENO WATSON, *Curator.*

27 November, 1891.

THE BOTANIC GARDEN.

To the President of the University:

Sir, — As Director of the Botanic Garden I have the honor of presenting the following report for the academic year 1890–91: —

During my absence — from August, 1890, until May, 1891 — the principal care of the Garden was entrusted to the foreman, Mr. Robert Cameron, who justified fully the confidence which had been placed in him. His attention to all details of management was minute, and his administration judicious.

He reports that the season was as favorable as usual for the growth of all our plants. There were comparatively few losses of any kind. The changes in arrangement were not important. The ever-recurring

question of labels for the plants became prominent during the summer; many of the older ones have been replaced by simpler sorts provisionally, but no decision has been reached as to the most useful and practicable. The devices which seemed promising a few years ago have been disappointing under the trying conditions of our climate. It will scarcely seem credible that the strong iron labels which were adopted in a large number of the orders a short time ago have proved less satisfactory than any other kinds, because they are used as projectiles by boys who invade the Garden in search of nuts. The most strenuous and severe measures on the part of the foreman have been insufficient to stop this wilful mischief. It is not pleasant to refer to this matter, but it is now placed on record to justify the employment of a police officer whose services will be asked for if next Autumn there should be a repetition of the annoyances of the current year.

As an offset to this abuse of the privileges of the Garden, mention should be made of the large numbers of orderly people who visit it during the pleasanter days of the year, and who appear to appreciate fully the advantages which are placed within their reach. It is not unusual to find in the Garden considerable numbers of school children accompanied by their teachers who are making good use of the specimens in flower. In this way, the Garden has been able to carry out the wishes of certain members of the Overseers' Committee. It should be widely known that to proper applicants for botanical specimens in the Spring and Summer, such specimens as can be spared without detriment to the Garden or to the classes in the University, are freely given on application to the foreman.

No important changes in the selection or arrangement of the plants out of doors are contemplated the coming year.

The greenhouses have required extensive repairs the past season. The moisture and heat of the tropical houses render the wood of which they are constructed very susceptible to decay, especially at the joints, where repairs are almost out of the question. The house for economic plants, built twelve years ago, has been largely reconstructed on the old site. When the time comes for complete reconstruction of this and the other houses, iron will be employed, it is hoped, for the framework wherever practicable. The heating apparatus arranged some years ago with great care is perfectly satisfactory in every respect. The repairs are comparatively slight and the danger from the sudden breaking of any part of the system guarded against in every way. By the method which is employed we are able to keep a very small fire for warm days, which can be quickly increased when severe weather is threatened.

The selection of plants for the ranges is always difficult. So far as possible, we have endeavored to keep types for the use of students instead of simple curiosities or specimens for horticultural exhibitions. But the houses would seem very unattractive if these latter were wholly absent, and, therefore, rather against our better judgment, they keep their places on our shelves. It is believed, however, that the introduction of certain new types from New Zealand and Australia, recently imported, will prove sufficiently attractive in themselves to warrant the withdrawal of the few plants which we keep now merely for color.

The greenhouses and frames supplied a large part of the material required for the advanced classes, and some of that needed for the elementary electives. But, as in former years, it was found absolutely necessary to supplement these supplies by plants from other sources. Fortunately for both parties, the arrangement with the Bussey Institution has been continued, by which we have had large numbers of specimens at the time in the Spring when it is difficult to procure desirable material from commercial greenhouses. The selection of species has already been made for the coming Spring and large numbers of the plants are under cultivation by the Instructor in Horticulture at the greenhouses in Jamaica Plain.

From the Garden, plants have been sent as required to the laboratories of the Society for the Collegiate Instruction of Women under nearly the same pecuniary arrangement as in previous years, and the Summer Classes in Botany have been supplied from the same source.

Regarding the Summer School and the different elective courses in the botany of flowering plants, the Instructor in Botany, Mr. W. F. Ganong, who took charge of the classes during my absence, makes the following statement: —

"During the academic year 1890–91 two courses in Phanerogamic Botany were conducted at the Botanical Museum: Botany 3, numbering 16 students, and Botany 1, 165. The former, a full course, was devoted to the practical study of the principles of vegetable Physiology and Histology, and included, as an important part of the work, the investigation by each student of some histological or physiological topic. This investigation was not necessarily on lines of original investigation, in the strict sense of the word; but in some cases it led in that direction, and in at least three cases the results were of such interest and value that the studies are to be continued the present year with reference to publication.

"Botany 1, a half-course, running through the second half-year, is an elementary elective of a general and comprehensive character. The facilities which are now placed at our disposal by our commodious

laboratories enable us to begin practical work much earlier and to carry it on with greater thoroughness than ever before.

"The Summer School of Botany continued for five weeks, opening Monday, June 28, and closing Saturday, August 1. It was attended by 21 students. The course included the usual laboratory work on vegetable anatomy, morphology and classification, supplemented by lectures on those subjects and on the principles of vegetable physiology, all carried on at the laboratories and lecture-room at the Botanic Garden.

"Very large quantities of material were required in these studies, and this the Garden supplied in abundance. In a systematic study of orders, with the more advanced students, it was found possible to take them very nearly in the sequence and combinations demanded by their natural relationships, something which can be done only when the supply of material is not only abundant but well arranged and well proportioned. A supplementary course, consisting of practical work on the principles and methods of vegetable histology, was given to about twelve students, in the afternoons, at the Botanical Museum."

Professor Farlow presents the following statement relative to the work in Cryptogamic Botany: —

"The courses Botany 2, 4, and 12, hitherto given in the Zoölogical Wing of the Museum, were in 1890–91 transferred to the new Botanical Wing, and although there was some confusion for a few days at the opening of the term in consequence of the removal to new quarters, the laboratory work did not differ in amount from that given in previous years. Through the kindness of the curator, Mr. Agassiz, permission was given to hold the lectures in Botany 2 in the Zoölogical lecture-room, the large Botanical lecture-room not being finished at the time. Botany 2 was taken by 36 persons, including 10 Seniors, 5 Juniors, 13 Sophomores, 2 Freshmen, 3 Scientific, 2 Special and 1 Graduate students. The work was conducted on the usual plan by Dr. W. A. Setchell and myself. Botany 4 was taken by 12 students, of whom 5 were Graduates, 3 Seniors, 1 Junior, 1 Sophomore, and 2 Scientific students. Dr. W. C. Sturgis acted as assistant in this course. Botany 12 was taken by 9 Graduate students. In this course the following papers representing work in original research were prepared for publication: —

Preliminary Notes on the Species of *Doassansia*, by Dr. W. A. Setchell. Published in Vol. XXVI., Proc. Am. Acad. Arts and Science.

Concerning the Life-history of *Saccorhiza Dermatodea*, by Dr. Setchell. Published in Proc. Am. Acad. Arts and Science.

A Monograph of the Genus *Doassansia*, by Dr. Setchell, which will appear in the next number of the Annals of Botany.

On the Structure and Development of *Choreocolax Polysiphoniae*, by Mr. H. M. Richards. Published in Proc. Am. Acad. Arts and Science.

On a Kephir-like Yeast found in the United States, by Mr. C. L. Mix. Also in Proc. Am. Acad. Arts and Science.

On the Potting-bed Fungus and some Allied Forms, by Mr. T. W. Galloway (which will appear in the forthcoming Rep. Mass. Hort. Society).

At the close of the year Dr. Setchell accepted the position of Instructor in the Sheffield Scientific School at New Haven, Dr. Sturgis was appointed Botanist to the Agricultural Experiment Station at New Haven, Mr. Galloway accepted a position in Tennessee, and Mr. Newton a position in Iowa."

With the exception of the lectures and laboratory practice in the Summer School and one of the advanced electives, all of the instruction in Botany is now given in the Botanical section of the University Museum. The whole upper floor is devoted to the classes in Cryptogamic Botany and to the collections which illustrate that subject. The second floor is given up to the laboratories in Phanerogamic Botany, and for the present this is sufficient to accommodate the large numbers in the electives. The space is well divided for the different courses and for the care of the instruments and other appliances used.

The N. C. Nash Lecture-room will be finished and ready for occupancy at the beginning of the second half of the current year. It will seat two hundred students. It is provided with means for lantern projections. The catalogue of lantern slides illustrative of Botany is now very large and varied, and taken together with the sets of diagrams and paintings, provides the instructors with nearly every requisite for the public demonstration of all branches of the subject.

Reference has been made in previous reports to the collections of glass models illustrative of vegetable structure. The cases for the proper exhibition of about three hundred of the plants and details are temporarily placed in one of the rooms on the third floor. The numbers of students of all grades who are attracted to these delineations of flowers and their parts, and the great numbers of visitors, indicate that the collection cannot fail to be increasingly attractive and useful.

The following brief statement of the beginning of this collection is here placed on record in order to fix the matter of dates:

In 1886 I visited Dresden for the purpose of inducing Messrs. Leopold and Rudolph Blaschka, who were engaged in the manufacture of zoölogical models, to undertake the preparation of a few models in

glass of plants and the parts of flowers. Only after repeated refusals, which I did not then understand, did they consent to construct the models of certain orchids and compositae. The exquisite beauty and botanical accuracy of the models in this first shipment left no room for doubt that the experiment was successful. Means were placed at my disposal by Mrs. Charles E. Ware and Miss Mary L. Ware for an additional order, which proved to be in all respects more satisfactory than the first. At this time it was decided to arrange for the production by the artists of as many as they were willing to contract for, all of the specimens to be selected for the demonstration of the types of American plants. At the beginning of 1890 it was evident that a change must be made in the contract. This change was effected during a special journey which I made to Dresden in May of that year. The artists found it impossible to construct our models of plants during half the year and the models of marine animals during the remainder of the year. They said that they must give up either one or the other. By the great generosity of Mrs. and Miss Ware, I was able to arrange satisfactory terms by which the artists contracted to prepare for our Museum models of the specimens selected by us, and to give us their whole time for the term of ten years. The last invoices are more successful than even the former ones, and the activity of these remarkable artists has been greatly increased by their exclusive devotion to a single line of work. It has been only within a comparatively short time that I have discovered the cause of the great reluctance of the elder Blaschka to the undertaking at the outset. It appears upon inquiry that he had constructed a few models of plants before beginning the preparation of the animal models to which he owes his wide celebrity; but these models of plants were, he thought, not appreciated by the persons for whom he had made them. The first set of models passed through various vicissitudes, and finally found a home in the Natural History Museum in Liege, where they were at last destroyed by fire. The artist did not have courage to undertake the experiment again, when he was succeeding so well with his animal models. He regards it as a pleasant turn in his fortunes which permits him to devote all of his time to the subject of his earliest studies. Both the artists consider it an important feature of our contract with them that they are to be engaged in the construction of a botanical collection which will be unique.

The number of models sent to us annually is about 120, together with three times as many details illustrating structure. It becomes, therefore, a question of importance, what room shall be assigned to the collection. After careful consideration on the part of the President of the University and Mr. Agassiz it has been decided to devote

to it the whole floor of the large Botanical Exhibition-room. After the receipt of the January shipment the specimens in hand up to that date will be placed in this central room, meanwhile the side room will be used for them.

As one of the results of a journey last year, which gave me an opportunity of examining the great botanical gardens in Ceylon, Java, the Straits Settlements, and Australasia, and Japan, I have arranged for the purchase and exchange of specimens to illustrate the useful products of the vegetable kingdom as represented in the tropics and the Southern Hemisphere, thus supplementing the collections already acquired from the Northern Hemisphere. The extreme liberality of a few friends of the Botanical department enabled me to make these arrangements upon the most advantageous basis. The collections of plants and their products are enhanced in value by the very large number of photographs procured during the long tour.

To our economic collections will be given up the two rooms on the third and fourth floor, adjoining the large exhibition-room, while to the cases of duplicates will be assigned the corresponding room on the first floor.

Mr. Agassiz has generously transferred to the Botanical section of the University Museum the large collections of fossil plants. For these, which are temporarily stored in the north room of the basement, cases will be placed in the well-lighted and spacious halls on the three lower floors.

The long south room in the basement is reserved for the important service of unpacking the cases as they are received. In the cases which come to us from the warmer parts of the tropics there is every probability of the introduction of insects and other museum pests. To guard against this the unpacking-room serves as quarantine.

It gives me much pleasure to state that numerous gifts from anonymous sources were received during the year for present use in the purchase of specimens, for their transportation, and for defraying the expenses of assistants in the foreign sources of supply already alluded to. In addition to these benefactions to the department, there was received from Mr. Hunnewell and Mr. Ames a sum of money sufficient for the purchase of a large number of desiderata which otherwise it would have been out of my power to obtain for the Museum.

Miss Anna C. Lowell has again sent to the Treasurer the sum of $1000 to be added to the "Lowell Fund for the support of a Botanic Garden."

For the construction of proper cases for the reception of our specimens, and for their immediate care, we need $30,000. This includes the overpayments by the Treasurer on construction account, amount-

ing to $7000. The balance will be sufficient to place the entire collection in a condition of efficiency and safety.

When this amount has been secured and judiciously expended the botanical collections in Phanerogamic and Cryptogamic Botany will be ready for public exhibition. Until that time, only the Ware collection of glass models will be accessible to visitors.

The Director desires to express his thanks to the Overseers' Committee on the Botanic Garden and Herbarium, and to the Committee on Instruction in Botany, for renewed evidence of their interest in the Botanical Department.

GEORGE LINCOLN GOODALE, *Director*.

NOVEMBER, 1891.

THE ARNOLD ARBORETUM.

TO THE PRESIDENT OF THE UNIVERSITY:

SIR, — I have the honor to submit the following report of the condition and progress of the Arnold Arboretum during the year ending July 31, 1891: —

Substantial progress has been made by the Park Commissioners of the city of Boston in carrying out their contract to build the roads in the Arboretum; and these are now all practically subgraded and ready for the stone surface. The road slopes are being made by the city as rapidly as possible, and there is reason to believe that a large part, if not the whole of the driveways, will be finished and open to the public before the end of the year 1892. The completion of the roadways will necessitate a large amount of planting during the next two or three years, although the arrangement of several groups of trees in the early part of the sequence must be postponed until a scheme for draining the low, wet meadow near Centre Street can be perfected and carried out. About twenty-five acres on that side of the Arboretum near its principal entrance, and lying along the parkway of the city, cannot be used until a proper outlet into Stony Brook is made for the surface water which now covers it to above the road levels for several weeks at a time every winter and for several days after heavy summer rains, and the whole territory is underdrained. The coöperation of the city of Boston and legislative authority will be necessary to accomplish this.

Some three hundred trees were planted during the year to complete groups which had been only partially planted previously, and to place the following genera in their permanent positions: Acer, Alnus, Taxodium, Taxus, Tsuga, Pseudotsuga, Sciadopitys, and Pseudolarix.

Interchange of Plants and Seeds.

The interchange of plants and seeds with other horticultural and botanical establishments has been continued during the year. There have been 9498 plants (including grafts and cuttings) and 760 packets of seeds distributed as follows: To all parts of the United States, 9252 plants and 30 packets of seeds; to Canada, 32 packets of seeds; to Great Britain, 100 plants and 192 packets of seeds; to the continent of Europe, 146 plants and 436 packets of seeds; to Japan, 66 packets of seeds; to India and China, 4 packets of seeds.

There have been received during the year 6980 plants and 10 packets of seeds. The principal contributors were Parsons & Co. of Flushing, N. Y., Samuel Moon of Morrisville, Penn., B. M. Watson of Plymouth, Mass., Thomas Meehan & Sons of Germantown, Penn., Anthony Waterer, Woking, England (a collection of hardy rhododendrons), and James Veitch & Sons, London (conifers and other trees). There has been added to the herbarium during the year 847 sheets of dried plants, principally North American (including Mexico) and South African.

A considerable part of the Arboretum being arranged, the experiment of furnishing the public with popular instruction about trees and shrubs was made during the year, and Mr. J. G. Jack, an assistant in the Arboretum, was appointed University lecturer on arboriculture for the purpose, and gave, twice a week during the months of May and June, instruction in the open air to a class of twenty-six men and women who paid a small fee for the privilege. His lessons, which treated of the plants in their botanical, economic, and ornamental aspects, were practical and interesting, and the fact that the average attendance at his lectures, which lasted between two and three hours, was nineteen and three-fourteenths out of a total of only twenty-six indicates that they were appreciated by the audience. Instruction of this sort, intended to aid people interested in plants or willing to learn something about them from the practical point of view, seems to be one method by which the collections of the Arboretum can be made useful; and it is proposed to give courses of outdoor instruction in future in the spring and autumn.

I take this opportunity to acknowledge the assistance I have received in the last two years from the committee appointed by the Board of Overseers of the University to visit the Arboretum. Through the efforts of the committee, represented by Mr. Stephen M. Weld acting as chairman, the Arboretum has received during the year the gift of a building from Mr. H. Hollis Hunnewell who has thus made it possible to place the valuable herbarium and library in secure and

commodious quarters, and to increase immensely the importance of the Arboretum as a station for scientific investigation and popular instruction.

Plans have been prepared, a site — close to the principal entrance to the Arboretum from the city parkway — has been selected, and the building will probably be occupied before the end of the next college year. It will be a hundred feet long and thirty-nine feet wide and will consist of a high basement, two stories, and a high attic. The lower and principal story will be divided in the middle by an entrance-hall which will open on each side into a museum-room, and in the rear into a small work-room in which is to be the stair shaft. The second floor will be divided into an herbarium-room, a library, and four work-rooms. By this plan the public can be admitted to the museum without interfering with the people working in the herbarium and library, which, by the location of the stairs, can be entirely shut off from the principal rooms in the lower story. Space will be provided in the two museum-rooms to display a selection of tree products; the herbarium-room will allow the present herbarium of the Arboretum to grow to three times its present size without being crowded; and the library will hold twenty thousand volumes. Abundant storage room will be provided in the basement and in the attic, which will be well lighted by high dormers.

The building will be made of common hard-burnt brick with brown stone window-sills, a moulded brick cornice, and a slated roof with copper ridge-rolls. The first floor over the basement, in which is to be placed all the heating apparatus in the building, will rest on a series of brick arches turned on brick cross-walls; the construction of the upper floors is of wood with joists resting on iron beams and securely built into the brick walls at the ends. Iron stairs enclosed in a brick shaft, and the isolated position of the building, should with this construction make it practically fire-proof. It will be heated by indirect radiation from coils placed in the basement and surrounded by galvanized iron boxes through which air is drawn from the outside and delivered through metal ducts built into the walls. A brick ventilating shaft will be carried up through the building enclosing the smoke flue from the boiler, and from the different rooms ventilating pipes will be taken into this shaft in which the heat from the flue will maintain a constant upward current.

During the year the second volume of "The Silva of North America," bringing the work down to the end of the *Sapindaceæ*, has been published; and in the fourth volume of "Garden and Forest" many of the observations made during the year by the staff of the Arboretum have been recorded.

C. S. SARGENT, *Director*.

THE CHEMICAL LABORATORY.

To the President of the University:

The only changes made during the last year in the methods and courses of instruction in the Chemical Laboratory was the introduction of a new half-course on chemical philosophy and the history of chemistry. For many years the passing of an examination on chemical philosophy has been made a condition of honors in this department. This condition was felt by the department to be very important because there is a tendency among laboratory students to overlook the philosophical and abstract aspects of the subject. An experimental science naturally attracts those who have an aptitude for manipulation rather than for philosophical thought; but while the Laboratory does a most important work in training such men in the direction in which, as nature plainly points out, their greatest usefulness lies, a university would not be justified in bestowing its highest honors for merely technical skill. Hitherto, although the requisition had been maintained, no instruction in chemical philosophy suitable for candidates for honors had been given, and the new course is intended to give definiteness and breadth to our requirement. The course was given by Dr. Theodore W. Richards and consisted of one lecture a week during the year. Since, with this exception, the same courses were given by the same teachers as during the previous years, and since all the details in regard to these courses will appear in the report of the Dean of the Faculty of Arts and Sciences, it would be superfluous to repeat the facts in this connection. It is sufficient to say that the resources of the Laboratory were taxed to the utmost to teach the large number of students who sought to avail themselves of its privileges.

The number of really advanced students capable of following out lines of original investigation under the direction of the professors in this department has been steadily increasing during the past few years, and if not so rapidly as has been hoped, yet fully as rapidly as the resources of the Laboratory would allow. It must be remembered that in the distribution of elementary teaching no allowance has ever been made for the superintendence of this class of students, although it is the most responsible work with which the teachers are charged, since any oversight or want of judgment on their part may entail great loss of time and risk the success of what, to the student, may be an all-important venture. In the attempt to develop a post-graduate course this work of superintendence has been added to the duty of officers

already heavily burdened, and although the duty is one which they may assume with alacrity in order to further a favorite study, yet the burden is becoming every year more onerous and provision must soon be made for such extra work. During the past year the advanced work in the Laboratory has been reasonably successful and under the title of "Contributions from the Chemical Laboratory of Harvard College" the following papers have been published in the Proceedings of the American Academy of Arts and Sciences. They are here enumerated in order of publication: —

1. A New Meteoric Iron from Stutsman County, North Dakota, by Oliver W. Huntington.
2. On Chlorsulphopyromucic Acids, by Henry B. Hill and Walter S. Hendrixson.
3. The Prehistoric and Kiowa County Pallasites, by Oliver W. Huntington.
4. On the Products obtained by the Action of Nitric Acid upon Bromtrinitrophenylmalonic Ester, by Charles L. Jackson and W. B. Bentley.
5. A Revision of the Atomic Weight of Copper. Fourth paper, by Theodore W. Richards.

A Summer School was held as usual between July 8 and August 15 under the superintendence of Mr. Joseph Torrey, who was aided by a corps of competent assistants. The courses and methods of instruction were essentially the same as in previous years and about fifty students were in attendance. The students were for the most part teachers of secondary schools and the further experience gained at this session confirmed the opinion expressed in the last report, in regard to the usefulness but necessary limitations of this Summer instruction.

At the date of the last report, the new mineralogical wing of the University Museum had been erected, and the collections removed to it from Boylston Hall, and temporarily stored in one of the unoccupied rooms. The construction of the new cases and the adaptation of the old ones required more time than was anticipated, and the exhibition rooms were not ready to receive the collection until April. The next three months were occupied with the rearrangement of the specimens, which involved a very large amount of labor which devolved for the most part on Dr. Huntington. The preliminary arrangement was finished a few weeks before Commencement and the new Museum opened to the public. Much still remains to be done in the details of classification and the verification of the card catalogue; but this must be a work of time.

The furnishing of the building cost more than the first estimates; but the liberality of several of the original subscribers, who increased their subscriptions, and an appropriation of one thousand dollars by the Corporation of the University, enabled us to carry out our plans

in a satisfactory manner, and the result is all we anticipated. This enterprise may, therefore, be regarded as concluded, and the total cost, including the rooms occupied by the Botanical department, is very closely fifty thousand dollars. In connection with the opening of the new Museum it is a pleasure to notice two handsome gifts which have added considerably to the interest of the collection. The first is a large mass of the diamantferous meteorite of Arizona, purchased by Francis Bartlett, Esq. at the cost of five hundred dollars, and presented by him to the Museum; and the second a very extensive suite of agates collected by Dr. W. S. Bigelow and presented by him to the University. It was a collection very highly esteemed by the late Dr. Henry J. Bigelow and has a special interest from its association with him.

Since the removal of the collections from Boylston Hall the plans for fitting up the rooms thus vacated for chemical uses have been carefully matured, and the work is already well advanced. The large room at the western end makes a very commodious lecture-room. It seats nearly five hundred persons, has excellent acoustic properties, is very well ventilated, and thus meets a long-felt want. The corresponding room on the upper floor is being furnished for an organic laboratory with the best modern appliances for advanced work, and it is hoped that it will be ready for use during the second half of the current year. The front room on the second story has been reserved for a reading-room and at the same time is used as a lecture-room for small classes.

In these alterations we have studied to increase the facilities of the Laboratory for advanced students and at the same time to relieve the crowding of our elementary classes. As has been before said, the building was never designed for a large chemical laboratory. At the date of its erection, in 1859, a single room with forty desks was thought an ample provision for all present and prospective needs. When the new laboratory-room is finished we shall have over two hundred and fifty working-tables more than half of which are occupied by two students with separate lockers, working at different hours. The writer knows of no chemical laboratory in which so many students are taught in the same space. The building was originally very solidly built, or it never could have stood such hard usage. In view of its present unforseen adaptation it has serious faults of construction. It has, however, been the aim of the Director to bring together all the modern facilities for chemical study and investigation, and when the new rooms are finished the opportunities which our Laboratory offers will compare favorably with those of any other institution in the United States.

JOSIAH P. COOKE, *Director.*

THE JEFFERSON PHYSICAL LABORATORY.

To the President of the University:

Sir, — The policy of the department has changed radically in regard to the expenditures for apparatus. Formerly this University, in common with other American colleges, sent large orders for apparatus to England, France, and Germany. This policy is still pursued in most American institutions of learning. Between the years 1870 and 1880 the foreign orders of Harvard University for physical apparatus averaged at least $1500 a year. During the past three years the foreign orders have not exceeded $100 a year. This change has been due to the increase in the laboratory method of instruction in physics and the practical abandonment of the lecture method. The physical cabinet has not grown by the addition of instruments for lecture demonstrations. On the other hand, the four principal laboratory courses have received large additions of apparatus for quantitative measurement.

The arrest in the growth of the physical cabinet will probably continue in the future, for the new professions which require a knowledge of Physical Science demand the accurate knowledge which can only be obtained in laboratories. The aim of the department during the past four years has been to systematize the laboratory courses. It was found that the apparatus necessary for this purpose could not be obtained abroad or in this country, and it was necessary to devise new forms of instruments and to make the models of these instruments in the Jefferson Physical Laboratory. To this end the machine-room of the Laboratory has been supplied, so far as the resources of the Laboratory permitted, with tools and materials in order that the professors and assistants might have suitable facilities for the work of designing and making models for apparatus. The designs and models were afterwards given to instrument makers in Boston to work from. A critic seeing a professor working in this machine-room, with hands covered with oil and filings, remarked "that it was a picture of a $4000 man doing the job of a $1000 man." This would be a true criticism if the professor undertook to make the finished instruments. No one can, however, design an economical and practical instrument unless he undertakes to make the rough model. Thinking grows with the use of the fingers, and the first thought is generally thrown aside when the contact with the brass and the tools shows that it is a poor thought. A physicist who is not a mechanic may thus prove an expensive acquisition to a university, for his ideas submitted

at first-hand to an instrument maker without the intimate knowledge which comes with personal contact with tools generally results in obtaining expensive instruments which do not answer their purpose.

As an instance of what the professors and assistants of this Laboratory have accomplished during the past two years in cheapening physical apparatus and producing at the same time better instruments than hitherto existed in the market at home or abroad, I give the following list: —

	Former price.	Present price.
Reading telescopes	$50	$6
Chronographs	150	40
Tangent galvanometers	50	12
Ballistic galvanometers	100	25
Resistance coils	100	50

The galvanometers mentioned in this list play a role in physical measurements similar to that of the microscope in biology. The types of instruments mentioned above have not only been greatly cheapened, but they could not have been found in the market at home or abroad: and this statement applies to a large portion of the apparatus which is used in our laboratory courses.

Several thousand dollars worth of apparatus have been sold during the year by instrument makers who have been furnished with designs and models by this Laboratory. This apparatus has been ordered by various schools and colleges. The growth of the Harvard method of elementary laboratory work in the schools is shown by the number of men who now present themselves in Laboratory Physics for admission to College. At least three hundred were examined in this subject last June and September, and the quality of their work was very gratifying to the examiners.

The instructors in the Physical department believe that the permanent success of the graduate department of any university in the department of physics will consist, not in the occasional accomplishment of a piece of investigation by a student who is supplied with his topic and is subjected to the constant guidance of a professor, but in the systematic development of every student in properly graded laboratory courses combined with a systematic mathematical course.

The term of the Summer School in Physics corresponding to Physics *C* was increased this year from four weeks to six. Twenty-four students attended the elementary course corresponding to Course *B*, and fourteen attended the higher course corresponding to Course *C*. There were many teachers in Course *C*, and they came from widely separated portions of the country. The course of lectures to Freshmen, which is entitled Physics *A*, has been made voluntary. The

number of students attending these lectures varied from one hundred to two hundred. It is probable that all who could receive benefit from these lectures attended them. It is the belief of the Director that popular lectures in physics have a very limited educational value, for in order to make the lectures popular the difficulties of the subject must necessarily be glossed over or concealed. In certain cases, however, such lectures awaken an interest in the subject.

Lectures were given on the following topics: —

Magnetism.
Electromagnetism.
Sound, with especial reference to the Telephone.
Optics, with especial reference to Photography.
Optics, with especial reference to Spectrum Analysis.
Prime Movers.
Electric Lighting.
Electric Railways.

The Director was occupied during the year on an investigation of the effect of very rapid electric oscillations on magnetism. It has been stated by eminent authorities that oscillations of the duration of a millionth of a second are not affected by the magnetic nature of the conductor over which they pulsate. It was found, however, that this was an erroneous conclusion. A marked effect of magnetism was discovered. This result has recently been confirmed by Professor J. J. Thomson, the director of the Cavendish Laboratory, Cambridge, England — who, however, pursued a different method from that adopted in this Laboratory.

The work on Electrical Oscillations, published in 1889–90, was also repeated with new apparatus, and the previous results were confirmed.

Professor B. O. Peirce has published during the year various mathematical papers, among which may be mentioned the following: —

On some theorems which connect together certain line and surface integrals.
On some simple cases of electric flow in flat circular plates.

Professor Hall has been occupied upon an investigation of the conduction of heat in the cylinder walls of the steam engine. The preliminary results of this work have been published in the minutes of the American Institute of Electrical Engineers and the full paper will also appear in the Proceedings of the American Academy of Arts and Sciences.

Mr. W. C. Sabine, Instructor in Physics, has been engaged during the year on investigations of the best form for various measuring instruments, among which may be mentioned Ballistic galvanometers

and electro-dynamometers. The laboratory for advanced work in electricity is now supplied largely with instruments of his design.

Mr. C. A. Rich, Assistant in Physics, has been occupied upon an investigation of alternating currents, and has nearly completed a new form of dynamo machine for testing the possibility of producing strong currents of high frequency.

A comparator for the measurement of lengths designed by Professor W. A. Rogers of Colby University has been acquired by the Laboratory and placed in a suitable room.

A standard for the measurement of electrical resistances has also been placed in the Laboratory. Dr. Robert W. Willson has superintended the work of preparing the resistance room and various ingenious devices to facilitate the comparison of resistances in this room are due to him.

The various laboratories are now supplied with storage batteries, and the destructive use of acids and mercury is obviated. The batteries of Bunsen, Grove, and Daniell have now for laboratories chiefly an historical interest.

The improvements in the heating arrangements of the Laboratory have resulted in an annual saving of from $500 to $600. The janitor of the Laboratory has ably seconded the efforts of the Director to improve the distribution of heat in the building. The work of the Laboratory, especially in the direction of research, would be greatly strengthened by the employment of a skilled mechanic. While it is very important that a professor of physics should have a knowledge of tools and practical mechanics in order to engage successfully in researches in physical science, it is equally important that his labors should be seconded by a skilled mechanical assistant. The fund for the support of a University mechanic now amounts to $7500. The income of at least $25,000 will be necessary for this object.

JOHN TROWBRIDGE, *Director*.

THE OBSERVATORY.

To the President of the University: —

Sir, — For several years past the Observatory has needed a fireproof building for preserving the large collection of photographs contained in the West Wing. This collection consists of nearly thirty thousand glass plates representing the entire sky from the north to the south pole, partly taken in Cambridge and partly in Peru; also a similar collection of the spectra of the stars, and of spectra on a much

larger scale of the bright stars visible in Cambridge. These photographs show the condition of the sky from 1886 to the present time and form the only collection of the kind which exists. The building in which they are stored is of wood and if a fire broke out would be destroyed in a few minutes. Fortunately, there is now a prospect that this want may be supplied by the erection of a plain brick structure. Subscriptions to the amount of $7200 have been promised towards a fund of $10,000 which is the estimated cost of the required building.

It is hoped that the remaining $2800 can be secured before long and that the foundation can be laid early next spring, so as to protect the plates from danger at as early a date as possible.

Observatory Instruments.

East Equatorial. — The observations with this instrument have been partly photometric and partly micrometric. Twenty eclipses of Jupiter's satellites have been observed photometrically, making 471 since 1877. One of the eclipses observed this year belongs to the opposition of 1890–1891 and completes a series of 452 eclipses observed during a period of rather more than one revolution of Jupiter. This series will be separately reduced and published. The systematic observation of seventeen circumpolar variable stars of long period has been continued, as in last year. Special attention was paid to the stars when they were faint. The relative brightness of the stars was determined by Argelander's method and a direct estimation was also made in each case. The total number of observations is 560 by each of these methods. Relative estimates of brightness were also made with the finder when the star was not too faint. Seventy series of observations of the relative brightness of the comparison stars for these variables were made, and fourteen series of measurements with the wedge photometer. Twelve zones comprising 403 of the fainter stars contained in the Durchmusterung were observed with the same instrument, each star being measured three times. Besides other miscellaneous observations, micrometric measures have been made of the positions of all the fainter comparison stars of the circumpolar variables and of the following comets: Comet 1891 IV. on 7 dates; 1891 a on 3 dates; 1884 III. on 6 dates; 1891 d on 8 dates. All of the observations, except a part of those of Jupiter's satellites, have been made by Mr. Wendell.

Meridian Circle. — The reduction of the observations made with this instrument by Professor William A. Rogers continues under his supervision. The printing of the zone catalogue, as shown under the head of Publications, is completed, and the manuscript of the

introduction to that catalogue is in the hands of the printer. The manuscript of three additional volumes, each of about 400 pages, has been prepared. Two of these volumes contain the journal of the zone observations, and the third contains the reduction to 1875.0 of all previous observations available for comparison with the zone catalogue, and a discussion of the results thus obtained for proper motion.

The observation of the southern zone comprising the declinations from —9° 50′ to —14° 10′ has been continued throughout the year by Professor Searle, assisted by Mr. Dunne. The number of nights of observation is 130; the total number of observations is 6220, distributed as follows: 255 relating to circumpolar stars, 853 to fundamental stars, 5080 to zone stars, 29 to variable stars, and 3 to stars incidentally observed. It appears probable that continuous observation will be unnecessary after April, 1892, as nearly all the zone stars will then have been observed twice, and many of them three times, if the work continues through the winter without interruption. The reductions have been regularly continued and provisional results have been obtained for the stars observed in the summers of 1888 and 1889.

West Equatorial. — Observations have been made with the six-inch equatorial mounted in the West Dome on 148 nights by Mr. W. M. Reed. The principal work has been the study by Argelander's method of the changes in the light of the variable stars of long period. 668 observations have been made of the 17 circumpolar variables mentioned above, 98 of other variables of long period, 245 of variables of short period, and 61 of new variables. About 840 comparison stars have been selected for 42 variables. Another important investigation has been on the use of a small prism attached to the centre of the object-glass. Each star is thus accompanied by an image about four magnitudes fainter than itself by which it is expected that the scale of photometric magnitude may be extended from the eighth to the twelfth magnitude. The relative brightness of the two images has been determined by four independent methods.

Henry Draper Memorial.

Three telescopes have been used continuously in this department of the Observatory, generally throughout every clear night. The eight-inch telescope closely resembles the Bache telescope and has a photographic doublet for an objective. 2505 photographs have been taken with it this year. Nearly one-half of the northern sky has been covered with charts having an exposure of ten minutes. A small prism attached to the objective forms faint images of the brighter

stars and provides a means of determining the true brightness of the fainter stars. A prism covering the objective enables the spectra of the fainter stars to be photographed. Similar work on the Southern stars has been done in Peru with the Bache telescope, 1224 photographs having been taken. The examination of these plates by Mrs. Fleming has shown that eight variable stars, R Cancri, S Serpentis, R Herculis, S Herculis, R Cygni, R Aquilae, and V Monocerotis, in addition to the thirty previously announced, have the hydrogen lines bright in their spectra. Five new variables have been discovered during the year by means of this property. Bright lines are also seen in the spectra of R Coronae and g Herculis which apparently are not due to hydrogen. Two known variables, R Sculptoris and U Cygni, have been shown to be of the fourth type and two fourth-type stars have been discovered to be variable. The number of stars of the fifth type, that is, having bright lines in their spectra like those discovered by Wolf and Rayet, has been increased by nine. The total number now known of these objects is 37, 27 of which have been found at this Observatory. All of them are situated very near the central line of the Milky Way which fact has led to the detection of several previously unknown. The hydrogen line F was shown to be bright in ν Sagittarii and ν Cygni. DM. —12° 1172, hitherto supposed to be a star, is shown by the photographs to be a planetary nebula. Two stars, DM. —10° 513 and DM. —10° 5057, have spectra of the fourth type in which, however, the blue light is well shown so that they do not have the usual characteristic red color. Well marked spiral rays are visible in a photograph of N. G. C. 1566.

The number of photographs taken with the eleven-inch Draper telescope is 1089. Photographs have now been obtained of the spectra of all the stars visible in Cambridge and bright enough to bear the dispersion used with this instrument. A large number of photographs were taken of β Aurigae to determine the form of the orbit of this curious binary. During December, 1890, this star was followed throughout every clear night so that the period could be determined with precision by comparison with similar observations made in 1889. By moving the telescope in right ascension every twenty minutes several spectra were obtained on each plate. In all, 184 spectra of this star were photographed. 106 photographs were also taken of ζ Ursae Majoris to study the apparent irregularity in the time at which its lines are double. In 10 cases only are the lines certainly double. An interesting discovery was made by Mrs. Fleming, that the bright lines in the spectrum of β Lyrae change their position in a manner somewhat like the doubling of the dark lines in

β Aurigae. The changes occur in the same period as the changes in light and appear to be very complex, but could, in general, be explained if we suppose the star to be a close binary; the spectrum of one component having bright, — the other, dark lines. A careful study of these changes has been made by Miss Maury and also of the spectra of the stars of the Orion type. A large number of charts have also been made of the vicinity of variable stars and of other peculiar objects, so that the parallax can be detected, if appreciable. To permit the prisms to be easily removed and replaced they have been counterpoised with a system of link-work which permits these changes to be made almost instantly without disturbing the equilibrium of the telescope. A large amount of work has been done on the measurement of the position of the lines in the stellar spectra and their conversion into wave-lengths. By the kindness of Mr. Edison, a dynamo of four horse power has been presented to the Henry Draper Memorial. This will greatly facilitate the study of terrestial spectra.

Boyden Fund.

The attempt to secure a suitable location for an observing station on Wilson's Peak in Southern California proved unsuccessful. A clear title could not readily be obtained for the land and the advantage of the situation as regards climate proved to be less than was at first anticipated. Although the air is extremely steady at certain times, clouds prevent observations during a large part of the winter and in the daytime the unsteadiness of the air would interfere seriously with solar work.

The expedition sent to Peru in 1889 under the direction of Mr. S. I. Bailey, having successfully completed the observations with the meridian photometer, returned to Cambridge with that instrument, which has been remounted here and will be used for a revision of the Harvard Photometry and for other photometric work. During the two years ending May 1, 1891, Mr. Bailey took 217 series of observations and made 98,756 photometric comparisons of about eight thousand southern stars. These include all the stars of the sixth magnitude and brighter south of —30° and all known catalogue stars in a series of zones 20′ wide at intervals of 5° in declination from —25° to —80°; also all known stars south of —80° and a miscellaneous list of variables, stars having peculiar spectra, etc. The reduction of these observations is nearly completed and their publication will be begun shortly. A large part of the work assigned to the Bache telescope has also been completed, and the instrument has been remounted at Arequipa where its work will be continued.

An expedition under the direction of Professor William H. Pickering left Cambridge in December, 1890, and established a station about three miles northwest of Arequipa, where the thirteen-inch equatorial has been mounted. This station has an elevation of a little over 8000 feet and has a nearly cloudless sky during a large part of the year. The air is remarkably steady, the images of the stars are small and round and the diffraction rings, seldom seen with large instruments, are clearly visible. Even with high powers the fluctuations of the images is very slight. In fact, at this station the limit to observation will probably be the size of the instrument instead of, as at other observatories, the condition of the air. Although the aperture of this instrument is only thirteen inches, it appears to be the largest refracting telescope in use in the southern hemisphere, while about thirty larger telescopes are mounted in the northern hemisphere. Since all of these instruments are north of $+35°$ nearly one quarter of the entire sky, and that containing many objects of the greatest interest, has never been studied by a refractor of the highest grade. For both these reasons an excellent opportunity is afforded to add to astronomical discovery by the erection of a telescope of large size at this station. It is hoped that patrons of astronomy will consider the advantages of erecting a large telescope where it will be kept constantly at work, where the sky is clear a large part of the year, where the condition of the air is probably more favorable than at any other existing observatory, and where a large part of the sky could be examined for the first time under such satisfactory conditions.

Photographs have not yet been obtained with the thirteen-inch telescope, but it is hoped that its advantages for this kind of work will be as great as for visual observations. The expense of establishing this station was much greater than had been anticipated, since it was necessary to erect a stone dwelling-house for the observers. A considerable advance from the future income of the fund has accordingly been required. Important aid was rendered to the expedition by many residents in Peru. Mr. MacCord, Superintendent of the Mollendo Railway, should be especially mentioned for his hospitality to the observers who resided with him while the new house was in process of erection. Without his aid the establishment of the station would have been extremely difficult. Two interesting expeditions have been made in Peru. One of them by the courtesy of Mr. Anderson, American Minister to Bolivia, was to Tiahuanuco and the sacred islands of the Incas on Lake Titicaca and led to results of much archaeological interest. The other was to the summit of El Misti, a nearly extinct volcano about nineteen thousand feet high.

The Bruce Photographic Telescope.

The two disks of glass for the flint-lenses of this instrument have reached here safely and appear to be of excellent quality. An accident to one of the disks of crown glass delayed its completion, but both of them are promised at an early date. Plans are being prepared for the mounting, and work on the instrument will begin as soon as the crown disks are received. The work of grinding and polishing the 24-inch prism to be used with this telescope has been completed during the year.

Various subsidiary investigations have been planned in connection with this instrument. For instance, the brightness of all stars photographed should be reducible to a uniform scale of magnitudes. A photographic transit instrument has been constructed which is moved automatically and photographs on a single plate all stars brighter than the sixth magnitude which cross the meridian during three hours. With this instrument it is expected to prepare a catalogue like the Harvard Photometry which will give the photographic magnitude of the bright stars on a uniform scale. A second investigation now well advanced will give the brightness upon the same scale of about forty thousand stars of the tenth magnitude. These stars are distributed throughout the entire sky so that one is in each square degree. Nearly three thousand of these stars have already been selected and almost all of them measured. About an equal number of brighter stars serves to reduce these observations to the same scale of magnitudes. Suitable photographs have been obtained of about one quarter of the entire sky, the whole of which will be photographed twice.

Miscellaneous.

Library. — The library of the Observatory has been increased during the year by the addition of 262 volumes and 821 pamphlets. The total numbers of volumes and pamphlets on November 1, 1891, were respectively 7029 and 7781.

Time Service. — The standard time signals have been sent mainly by the Bond clock No. 394. The average error at the time of observing star transits has been 0.44, the average interval between determinations being 2.5 days. The average error at 10 A.M. has been 0.38, the number of clock comparisons being about 500. The average change in the daily rate from each day to the next has been 0.32. In computing these figures the results for September 11 have been omitted since a large error occurred on that day owing to an accident to the clock. The signals were interrupted from September 14 to 17 owing to changes in the cable at the draw of West Boston Bridge.

The Time Ball dropped correctly on 285 week days. It is probable that this department of the work of the Observatory will be abandoned shortly since similar signals furnished by the U. S. Naval Observatory are now offered to the public through the Western Union Telegraph Company.

Telegraphic Announcements. — The distribution of telegraphic announcements of discovery has been continued under the management of Mr. Ritchie. During the year telegrams concerning the discovery of nineteen asteroids and seven comets, and others relating to two orbits and to four positions of comets have been sent out, requiring in all 624 telegrams and 12 cable messages.

Publications. — The zone catalogue of stars between the declinations $+55°\ 10'$ and $+49°\ 50'$ has been printed, and the introduction has been sent to the printer, as stated above in describing the work done under the direction of Professor Rogers. This catalogue, with its introduction, will form Volume XV., Part II., of the Annals of the Observatory. Volume XIX., Part II., will be completed by the publication of a discussion of atmospheric refraction, the materials for which are derived from photographic observations. This work has been in progress during the year, but is not yet fully ready for printing. Volume XXI., Part II., mentioned last year as about to be published, has been printed and distributed. It contains the observations of the New England Meteorological Society for 1889, with essays by officers of the Society on climate and sea breezes. Volume XXIII., Part I., containing a description of the observations with the meridian photometer in the years 1882 to 1888, inclusive, has also been printed and distributed. Volume XXIV., containing the catalogue of 20,982 stars derived from these observations, which was printed last year, has since been distributed. Volume XXV. is not yet undertaken. Volume XXVI., Part I., which contains a description and discussion of the observations made with the Bache photographic telescope during the years 1885 to 1889, has been completed; and Volume XXVII., printed last year, has likewise been distributed. It forms part of the Henry Draper Memorial, and contains a catalogue of the spectra of 10,347 stars, to be known as the Draper Catalogue. Volume XXX., Part I., also printed last year, has been distributed, as has Part II., of the same volume, more recently printed. The whole volume forms a continuation of Volume XX., and contains meteorological observations made at the Blue Hill Observatory during the years 1889 and 1890, with a summary of observations for the five years ending with 1890. Volume XXXI., Part I., will soon appear, 130 pages being already in type. It forms

the continuation of the observations of the New England Meterological Society, the publication of which was begun in Volume XXI.

Besides the volumes of Annals above mentioned, the following publications have appeared during the year: —

Forty-fifth Annual Report of the Astronomical Observatory of Harvard College. Cambridge, 1890.

Variable Stars of Long Period. Cambridge, 1891.

History and Progress of the Henry Draper Memorial. Extracted from the Annals of the Observatory, Volume XXVI., Part I.

Harvard College Observatory. A circular inviting subscriptions for the new fire-proof building.

A Possible Secondary Cause of the Phenomenon of Gegenschein. By Arthur Searle. Astronomische Nachrichten, cxxvi. 115.

Observations of Comets 1889 I., 1889 V., companion to 1889 V., Comet 1890 II., 1890 III., 1890 VI. By O. C. Wendell. Astronomische Nachrichten, cxxvi. 43.

Observations of Comet 1890 IV. By O. C. Wendell. Astronomische Nachrichten, cxxvi. 121; also, Astronomical Journal, x. 102.

Second series of Observations of Comet 1890 IV. By O. C. Wendell. Astronomische Nachrichten. cxxvii. 297; also, Astronomical Journal, x. 123.

Observations of Comet 1882 II. By O. C. Wendell. Astronomische Nachrichten, cxxvii. 293.

Observations of Comet 1889 I., Comet 1890 II., Comet 1890 III., Comet 1890 VI., and Comet a 1891. By O. C. Wendell. Astronomische Nachrichten, cxxvii. 297; also, Astronomical Journal, xi. 4.

Ephemeris of Comet 1890 VI., for November, 1890. By O. C. Wendell. Sidereal Messenger, ix. 419.

Ephemeris of Comet 1890 II., for December, 1890. By O. C. Wendell. Sidereal Messenger, ix. 465.

Orbit and Ephemeris of Comet 1890 IV. By O. C. Wendell. Sidereal Messenger, x. 35.

Ephemeris of Comet 1890 IV., for February, 1891. By O. C. Wendell. Sidereal Messenger, x. 102.

Ephemeris of Comet 1890 II., for March, 1891. By O. C. Wendell. Sidereal Messenger, x. 147.

Ephemeris of Comet 1890 II., for April, 1891. By O. C. Wendell. Sidereal Messenger, x. 201.

Orbit and Ephemeris of Comet a 1891. By O. C. Wendell. Sidereal Messenger, x. 288.

Ephemeris of Comet a 1891, for July, 1891. By O. C. Wendell. Sidereal Messenger, x. 368.

Stars having Peculiar Spectra, including New Variable Stars in Triangulum and Hydra. By M. Fleming. Astronomische Nachrichten, cxxvi. 117.

Stars having Peculiar Spectra. By M. Fleming. Ibid. cxxvi. 165.

Stars having Peculiar Spectra. New Variable Stars in Perseus, Triangulum and Hydra. By M. Fleming. Sidereal Messenger, x. 7.

Astronomical Expedition to Peru. By M. Fleming. Ibid. x. 105.

Stars having Peculiar Spectra. New Variables in Aquarius and Delphinus. By M. Fleming. Ibid. x. 106.

New Variable Star in Camelopardalis. By M. Fleming. Ibid. x. 152.

The New Red Star in Auriga. By M. Fleming. English Mechanic, liii. 50.

Objects of Interest on Spectrum Plates and Two New Variable Stars in Perseus. By M. Fleming. Astronomische Nachrichten, cxxvi. 163.

Stars having Peculiar Spectra. New Variable Stars in Aquarius, Delphinus, and Camelopardalis. By M. Fleming. Ibid. cxxvii. 5.

New Planetary Nebula. DM. —12° 1172. By M. Fleming. Sidereal Messenger, x. 240.

Stars having Peculiar Spectra. New Variable Star in Sagittarius, R. A. $19^h\ 51.8^m$ Dec. —42° 7′. By M. Fleming. Astronomische Nachrichten, cxxviii. 11.

Stars having Peculiar Spectra. New Variable Star in Lacerta. DM. +39° 4851. By M. Fleming. Ibid. cxxviii. 121.

Aid to Astronomical Research. By Edward C. Pickering. Reprinted in Sidereal Messenger, ix. 473.

Close Binary Stars. By Edward C. Pickering. Sidereal Messenger, x. 5.

A Fifth Type of Stellar Spectra. By Edward C. Pickering. Astronomische Nachrichten, cxxvii. 1.

The Discovery of Double Stars by Means of their Spectra. By Edward C. Pickering. Astronomische Nachrichten, cxxvii. 155.

Spectrum of β Lyrae. By Edward C. Pickering. Astronomische Nachrichten, cxxviii, 39. Reprinted in The Observatory, xiv. 341.

The Draper Catalogue. By Edward C. Pickering. Nature, xliv. 223.

EDWARD C. PICKERING, *Director*.

THE MUSEUM OF COMPARATIVE ZOÖLOGY.

To the President and Fellows of Harvard College: —

During the past year the usual courses of instruction have been given at the Museum in Zoölogy by Professor Mark, Dr. Slade, and Mr. Parker, assisted in the Laboratory work by Messrs. W. M. Woodworth, Ritter, and Hubbard.

Professors Whitney, Shaler, and Davis, and Dr. J. E. Wolff gave courses of instruction in Geology, Palaeontology, Physical Geography, and Petrography. Messrs. Harris, J. B. Woodworth, Cobb, and Tarr were the Assistants in the Undergraduate instruction of the Geological Department.

Professor Farlow's report upon the Botanical part of the introductory course of Natural History will appear in the report of the Botanical Department.

The Geological Section of the Museum has been occupied during the past year, and its laboratories and lecture rooms have been found well adapted to their purpose. No progress has as yet been made in the equipment of the Geological and Geographical Museum, but the rooms are used to establish a connection between the Exhibition Rooms of the Museum of Comparative Zoölogy and the Botanical and Mineralogical Collections of the University Museum.

An extensive addition has been made to the Newport Marine Laboratory, so that there is now ample accommodation for eight advanced students, beside the space occupied by myself and assistant. Additional room is thus provided for the housing of books, drawings, and other records in use at the Laboratory. Messrs. Woodworth, Davenport, Smith, Ward, Nickerson, and Lucas spent some time at the Newport Laboratory, either collecting material for future investigation or carrying on special work on the embryology of Annelids, Bryozoa, and Acalephs. Mr. Woodworth also passed a few days at Newport before the opening of the season in putting the Laboratory in order for work.

We have to thank Colonel Marshall McDonald, United States Fish Commissioner, for facilities granted our students in connection with their work by the Fish Commission Station at Wood's Holl.

There have been no changes in the Exhibition Rooms beyond the additions made to fill gaps existing in our series. The collections open to the public remain in a satisfactory condition and the interest in the exhibit does not appear to diminish, judging from the constantly increasing number of visitors.

The Pacific Room is little by little preparing for exhibition, and I hope to open it to the public as soon as we can make a reasonably interesting exhibit of the fauna of some of its groups of islands. We have been for some time accumulating collections from the Sandwich Islands, the Galapagos, and the Feejee Islands.

The most important addition to our Exhibition Rooms has been the mounted skeleton of the fine Sperm Whale, obtained through Professor Ward, mentioned in my last report. This skeleton has been suspended from the roof of the large Exhibition Room devoted to the Systematic Collection of Vertebrates, and finds its place naturally by the side of the two other large skeletons of whales similarly placed.

The magnificent series of Pampas Fossils obtained by Professor Ward have been mounted by him and safely moved to Cambridge from Rochester. They occupy a part of the central floor space of the rooms devoted to the Tertiary Faunae. A few other specimens of extinct Vertebrates have been moved to the same rooms, so that as

soon as the specimens are labelled it will be possible to open two of the Palaeontological Exhibition Rooms to the public. They will, however, contain at first only a small part of the collections they are intended to house.

The collections of the Museum continue in good condition. Owing to Dr. Hagen's prolonged ill-health he has been able to give but little time to the Museum, and has been unable to make his usual report. The collections have been kept in excellent condition, but of course, owing to his absence, they could not be placed at the disposal of specialists as has always been the case heretofore.

Mr. J. A. Allen, of the Museum of Natural History of New York, has returned the collection of Muridae which had been sent to him for study.

Professor Harrison Allen of Philadelphia has returned the collection of Bats sent to aid him in the preparation of a monograph on the family for the Smithsonian Institution.

Messrs. Scott and Osborn have returned an additional invoice of the collection of Western Fossils lent to them.

Professor S. I. Smith of New Haven has returned the part of the "Blake" Crustacea remaining in his possession.

Professor Solas of Dublin has sent back a few of the types of the "Blake" and other Sponges.

Messrs. Scudder and McMurrich have returned drawings of Lepidoptera and of Actiniae which had been lent to them for examination.

We have received from Messrs. Wachsmuth and Springer a number of Palaeozoic Crinoids; from Mr. Charles Chilton, a collection of New Zealand Crustacea; from the Zoölogical Museum of the University of Copenhagen, a collection of Fishes and Invertebrates from the Kara Sea made by the Expedition of the "Dijmphna"; from the Paris Museum, a collection of Deep-sea Fishes, mainly from the "Travailleur" and "Talisman" Expeditions; from Mr. Arthur H. Gordon, an interesting collection of Lepidoptera from Central China; and from Lieut. Commanding J. F. Moser, a collection of Corals from the submarine cable between Key West and Havana, illustrating the rate of growth of corals. (See the Museum Bulletin, Vol. XX. No. 2.)

In addition to the specimens purchased from Professor Ward we have also filled a few gaps in our collection of Reptiles, mainly for the Exhibitions Rooms.

With the exception of an exhaustive report on the Paguridae of the "Blake" Expedition, for which the Museum is indebted to Professor Alphonse Milne-Edwards, the "Blake" publications and collections remain in the same state as last year. The report of Professor Milne-Edwards is accompanied by twelve beautifully executed plates. The

report will be published as soon as the plates can be reproduced. It will form an important contribution to our knowledge of the Paguridae. Messrs. Goode and Bean hope to finish their Memoir on the "Blake" Fishes within a few weeks. Fair progress has been made on the Memoirs and Bulletins mentioned in my last report as preparing for the press, and the greater part will undoubtedly be issued during the coming year.

A list of the publications of the Museum issued during the past academic year is appended to this report. We have published twelve Bulletins in the Zoölogical Series, making nearly two volumes of the Bulletin. With the exception of one number by Messrs. Scott and Osborne, and three short Bulletins by myself, the publications represent work done in the Zoölogical Laboratory in charge of Professor Mark. The activity in that laboratory shows the excellent use which can be made of our publication by the instructors in the various departments connected with the Museum.

Among the publications based upon Museum materials, I may mention a Review of the South American Nematognati, by C. H. and Rosa S. Eigenmann, published in occasional papers of the California Academy, I., July, 1890. Nearly the whole of this systematic paper is based upon the collection of Catfishes made by Professor Agassiz during the Thayer Expedition. The authors, with the alacrity with which impracticable plans are so readily laid out for others, needlessly go out of their way to criticise the state of the collection as left by Dr. Steindachner, and give the Museum excellent advice as to what ought to have been done with this collection when it was first brought together.

Professor W. B. Scott has published in the American Journal of Morphology an extensive paper on the Osteology of Pœbrotherium, based in part upon Museum material.

Professor Osborn has kindly made out for future use of the Museum a list of our desiderata in Western Fossils, both generic and stratigraphic.

I ought also to mention a short paper on Nettastoma by Dr. Bürger, published in a recent number of the Zoologische Jahrbücher, IV., the material for which was obtained from the Newport Laboratory.

The additions to our Library show a satisfactory increase in the number of accessions, especially from the exchanges with other institutions. Among the latter I must specify an important addition to our Geographical Library, consisting of a number of Government Surveys and Reports of Geographical Institutions, with extensive series of their maps and publications. These have been generously sent to us in exchange for our Geological publications, and with the

full knowledge of how small a return we were able to make for these magnificent publications.

Last fall I was invited by Colonel Marshall McDonald, the U. S. Fish Commissioner, to take charge of a deep-sea dredging expedition off the coasts of Central America and of Mexico. With the consent of the President of the United States, the "Albatross," Lieut. Commander Z. L. Tanner, commanding, was ordered to Panama, where I joined her in February. Our cruise extended from Panama to Cocos Island, thence south toward Malpelo, and back to Panama. Our second cruise ran from Panama to Galera Point, thence to the Galapagos, and from there to Acapulco; and in May I left the expedition at Guayamas, after a short exploration of the Gulf of California. The letters written on the voyage to Colonel McDonald give a preliminary account of this trip; they have been published in the Museum Bulletin (Vol. XXI. No. 4), and a more extended account of the expedition is in preparation. The collections made have arrived safely at Washington and, with the consent of Colonel McDonald, arrangements have been made for the publication of the results in the Memoirs and Bulletins of the Museum. The following gentlemen have kindly agreed to work up the collections: Professor S. F. Clarke and Mr. Peabody, the Hydroids; Dr. W. H. Dall, the Mollusks; Mr. C. B. Davenport, the Bryozoa; Professor Faxon, the Crustacea; Dr. C. Hartlaub, the Comatulae; Professor W. E. Hoyle, the Cephalopods; Mr. S. Garman, the Fishes; Dr. Goes, the Foraminifera; Dr. R. von Lendenfeld, the Phosphorescent Organs of Fishes; Professor Ludwig, the Holothurians; Professor Lütken, the Ophiurans; Dr. John Murray, the specimens of the bottom; Professor Mark, the Actinians; Mr. W. Percy Sladen, the Starfishes; Professor Studer, the Gorgonians; Dr. W. M. Woodworth, the Planarians; and Dr. H. V. Wilson, the Sponges. I shall myself undertake the general account of the Pelagic Fauna, the Acalephs, and the Sea Urchins. The groups forming the remainder of the collection will probably be distributed during the coming winter.

Twice before I had been on the point of making an exploration of the deep waters of the Pacific off Panama. Once my plans were disarranged by the breaking out of war between Chili and Peru, and three years ago, when the "Albatross" was on her way from New York to San Francisco, I was unable to meet her at Panama, although she was detained there for a time by the Fish Commissioner in hopes I might be able to join the ship before she left for the Galapagos. I find it difficult to express my obligations to Colonel McDonald for having given me the opportunity of accompanying the "Albatross" on her second cruise, and of carrying on the explorations of the past

winter in so new and so interesting a field on a vessel so admirably adapted and equipped for the purpose as the "Albatross," and commanded by so experienced and enthusiastic a deep-sea dredger as Lieut. Commander Tanner. To Mr. Richard Rathbun, Assistant of the U. S. Fish Commission, I must express my thanks for the care, interest, and patience with which he attended to the endless details connected with the fitting out of the "Albatross" for her voyage.

We are unfortunately compelled for want of funds gradually to restrict the work of the assistants of the Museum to the mere care and maintenance of the collections, and to limit their use by specialists. Our inability to engage a sufficient number of assistants compels us to refuse many of the constant demands made upon the administration of the Museum for an opportunity of working up or of examining parts of our collections, the value of which to science is thus greatly diminished. It is true we have a number of volunteer assistants, but we cannot expect these gentlemen, who have kindly undertaken the general supervision of special departments, to spend their time in the drudgery necessary to meet the legitimate demands which every fairly organized Museum ought to be able to meet, and which are naturally made upon our collections and assistants. With the exception of Dr. Hagen and Mr. Garman there is no assistant upon whom I feel at liberty to call for work of that kind. The annual expenditure of a comparatively moderate sum would go far to remedy the unfortunate attitude we are compelled to assume towards specialists. But I need not dwell upon the unsatisfactory condition of the Museum finances. As I have stated in former reports, it is no longer practical for me, in connection with other plans I have in view, to continue to give to the Museum the support, or to devote to its interests the time it has hitherto received from me. It is becoming self-evident that an attempt to establish at Cambridge a Museum devoted to original investigation, in addition to its other functions of providing a University Museum and Laboratories, is not destined to be carried out. We cannot compete with the general government or municipal institutions without an endowment or resources far greater than any university can hope to obtain, and the sooner the future plans of the Museum are modified to meet the existing state of things, the less will be the waste and the sooner shall we adapt our organization to the comparatively limited field of a University establishment.

The publications of the Museum issued during the past academic year are as follows: —

Of the Bulletin. — Vol. XX. [Complete.]

No. 2. On the Rate of Growth of Corals. By A. Agassiz. pp. 4. 4 plates. August, 1890.

No. 3. Preliminary Account of the Fossil Mammals from the White River and Loup Fork Formations. Part II. Carnivora and Artiodactyla, by W. B. Scott. Perissodactyla, by H. F. Osborn. pp. 36. 3 plates. November, 1890.

No. 4. Contributions from the Zoölogical Laboratory. — XIX. Cristatella: the Origin and Development of the Individual in the Colony. By C. B. Davenport. pp. 52. 11 plates. November, 1890.

No. 5. Contributions from the Zoölogical Laboratory. — XX. The Eyes in Blind Crayfishes. By G. H. Parker. pp. 12. 1 plate. November, 1890.

No. 6. Notice of Calamocrinus Diomedae, a New Stalked Crinoid from the Galapagos, dredged by the U. S. Fish Commission Steamer "Albatross." By A. Agassiz. pp. 4. December, 1890.

No. 7. Contributions from the Zoölogical Laboratory. — XXI. The Origin and Development of the Central Nervous System in Limax maximus. By Annie P. Henchman. pp. 40. 10 plates. December, 1890.

No. 8. Contributions from the Zoölogical Laboratory. — XXII. The Parietal Eye in some Lizards from the Western United States. By W. E. Ritter. pp. 20. 4 plates. January, 1891.

Vol. XXI. [Complete.]

No. 1. Contributions from the Zoölogical Laboratory. — XXIV. Contributions to the Morphology of the Turbellaria. I. On the Structure of Phagocata gracilis, Leidy. By W. M. Woodworth. pp. 44. 4 plates. April, 1891.

No. 2. Contributions from the Zoölogical Laboratory. — XXV. The Compound Eyes in Crustaceans. By G. H. Parker. pp. 98. 10 plates. May, 1891.

No. 3. Contributions from the Zoölogical Laboratory. — XXVI. On some Points in the Morphology and Histology of Sipunculus nudus, L. By H. B. Ward. pp. 42. 3 plates. May, 1891.

No. 4. Three Letters from Alexander Agassiz to the Hon. Marshall McDonald, on the Dredging Operations off the West Coast of Central America to the Galapagos, to the West Coast of Mexico, and in the Gulf of California, carried on by the U. S. Fish Commission Steamer "Albatross." pp. 16. June, 1891.

No. 5. Contributions from the Zoölogical Laboratory. — XXVII. The Development of the Pronephros and Segmental Duct in Amphibia. By H. H. Field. pp. 140. 8 plates. June [August], 1891.

ALEXANDER AGASSIZ.

Cambridge, October 1, 1891.

THE PEABODY MUSEUM OF AMERICAN ARCHAEOLOGY AND ETHNOLOGY.

To the President of the University:

Sir, — In submitting this report, which marks the twenty-fifth anniversary of the Museum, the temptation is great to digress from the actual work accomplished during the year to a review of the past. I will venture to refer only to a few incidents of historic interest which, if too recent to be of importance now, may be worthy of record for the information of our successors. The following abstract from a letter received from Professor O. C. Marsh of Yale University, relating to the twenty-fifth anniversary of the Museum, contains an interesting statement which, since it has never been incorporated in the reports of the Museum, is appropriate in this connection: —

"The first idea of the Peabody Museum at Cambridge occurred to me in October, 1865, while digging in an ancient mound near Newark, Ohio, and that evening I wrote to my uncle, Mr. Peabody, at London, urging him to establish such a museum. He had already told me of his intention of making gifts to Harvard and various other institutions, and had requested me to look over the ground and give him information on the subject. My own interest in American archaeology was mainly due to Sir Charles Lyell, who had just published his "Antiquity of Man," and, when I saw him in London, urged me in the strongest terms to take up the subject in America as a new field for exploration. This advice I commenced to follow, and hence my letter to Mr. Peabody, as work in the field impressed upon me the great importance of such researches.

When Mr. Peabody came to this country in the following year, I again brought the subject to his attention and at his request consulted with Mr. Winthrop about the matter. After various visits to Cambridge and consultations with Professors Wyman and Gray, I obtained full approval of the proposed plan from Mr. Peabody and the deed of gift was executed.

The wisdom of this gift has never been questioned and what has been accomplished by it in twenty-five years is known to the whole world of science."

Although Mr. Peabody's letter of gift is dated October 6, 1866, the Museum was actually begun on November 9 of that year, when about fifty specimens were brought together by Professor Wyman and arranged in a small case in the Anatomical Laboratory, where by a strange coincidence it had been my good fortune to study comparative anatomy under this honored teacher who was one of the original members of the Board of Trustees and the first Curator of the Museum.

Another small collection was brought from the ancient pile-structures of Lake Neuchatel in 1859 by another revered teacher, Louis Agassiz, whose assistant I was at that time. Well do I remember that little collection arranged in a corner case of the Museum of Comparative Zoölogy, and intended to illustrate the early conditions of man as part of the great collection planned by Agassiz for the comparative study of animal life. Had not Mr. Peabody made his gift for a special Museum of Archaeology and Ethnology, there can be little doubt that in the development of the Museum of Comparative Zoölogy that part relating to man would have had a vigorous growth from the seed planted by Agassiz when he brought these specimens from Neuchatel to be a part of his museum. Soon after the foundation of the Peabody Museum, Agassiz, with the true scientific spirit, gave to its cabinets all appropriate material from his collections; and since that time this Museum has received from the other such objects as are more in place in our cases than in its own. Now the two museums are fast approaching each other both intellectually and materially; for while the study of general zoölogy is more and more leading to the study of anthropology, the separate buildings will before long be united, when the collections illustrative of zoölogy, geology, mineralogy, botany, and anthropology will form a great University Museum.

To further review the past of the Peabody Museum would be to review the whole subject of American archaeology and ethnology for a quarter of a century, so closely identified is this Museum with many phases of its development. It has, moreover, taken its full share in the work of introducing scientific methods of arrangement into the heterogeneous collections of antiquities and of curios from uncivilized peoples. These scientific methods of research and arrangement are now producing results of importance, and many of these results are shown in our halls. Here the specimens are so arranged that a comparative study can be made of the beginning and development of primitive art among peoples in various stages of culture; while the osteological collection furnishes material for the study of the physical characteristics of each people and the racial connection of one to another.

Seventeen years ago when I was first called as the successor of my honored and lamented predecessor, Jeffries Wyman, to the charge of the Museum, its collections had during the eight years then passed outgrown the few cases in the Anatomical Laboratory, and were arranged in the upper gallery of Boylston Hall. At that time there were several important collections in the Museum, and with these for study and inspiration the incentive was great to develop it on a

grander scale and work for its enlargement in every direction. How this work has progressed, how an active interest has been awakened, how friends have helped to make the Museum what it now is, and how my plans for its still greater development are constantly meeting with encouragement, you are able to judge. I can only say that when I look back seventeen years and realize that instead of one small gallery and a work-room we now occupy a building one hundred feet long and five stories high, as half of our contemplated structure, I feel that we have reason to hope for the completion and equipment of our building at no distant day, and that the plans maturing during these many years will finally be accomplished. This, however, can only be brought about by continued energetic action on our part in keeping the Museum up to a standard worthy of support and in making our wants distinctly known. The most pressing of these wants at the present time are the means for paying assistants and money for the completion of the building. The plans for the ultimate arrangement of the collections can then be carried out by the exhibition of all we have and shall obtain relating to the origin of man, his distribution over the earth, his development in the arts, and his racial connections; thus making the Museum a school of anthropology such as the demands of science require and the University should have.

Two encouraging events in this direction have occurred during the past year, namely: The foundation of the Hemenway Fellowship mentioned in the last report, which has now been established by the gift of $10,000 from Mrs. Mary Hemenway. This Fellowship the Trustees of the Museum may now award annually to a student in the Graduate School of the University entering this department preparatory for the higher degrees of the University. The other is the gift by Roger Wolcott, Esq., acting under the will of his father, J. Huntington Wolcott, of $10,000 as a memorial of his brother, Huntington Frothingham Wolcott, that his name may be perpetuated in connection with Harvard College. The terms of the trust as stated by Mr. Wolcott are as follows: —

"Ten thousand dollars to be received and known as the Huntington Frothingham Wolcott Fund, the income to be expended by the Trustees of the Peabody Museum of American Archaeology and Ethnology or their successors for the promotion of archaeological and ethnological research and exploration, the purchase of objects illustrative thereof or the publication of matter relating thereto. I have pleasure in noting that there is included in this amount a sum received after my brother's death in payment of his military services.

"It is my belief that for many years the Western Hemisphere will furnish a rich field, as yet almost untilled, for the prosecution of such investigations, but it is not my intention to restrict by geographical lines the uses to which the income

may be applied. It would in no way conflict with my wishes if those who have the disposition of the income of this fnnd should in their discretion decide to allow the income to accumulate for one or more years in order more fully to carry out the purpose of the trust. I can easily conceive that this may be desirable either for the equipment of an expedition for exploration, the purchase of collections, or for some other purposes within the scope of the trust. But I request that, whether the income be expended as it accrues or be allowed thus to accumulate for future use, a vote of the Trustees setting forth the disposition of it be entered upon their records as often as once yearly."

The liberal provision of this memorial fund will enable us to take advantage of many opportunities for increasing the collections, as with this money ready at hand it will be possible from time to time to do a little digging or to purchase a small collection of special importance. Our gratitude is due Mr. Roger Wolcott for the conditions of the gift as well as for the gift itself.

To Mrs. Esther Herrman of New York we are indebted for a gift of $500, and to Mr. James H. Jones of New York for $100. These sums I have used in a little special work in Tennessee and in the examination of a small burial-place of the Indians on Cape Cod. Mrs. Zelia Nuttall has kindly remembered our needs while abroad by contributing $100, which has been applied to printing expenses. Major William S. Beebe of Connecticut has given $250 toward the purchase of the collection of copper implements from Mexico, Mrs. Baylies has continued her annual contribution of $25, and the New England Telephone and Telegraph Company have contributed $35 to the Museum.

The lack of greater means for special research during the year has been severely felt, as we have lost opportunities for the exploration of several very important places which I had hoped would be thoroughly examined under our direction. The demand for "relics" is now so great, owing to the many collectors in the field and the high prices which they pay for stone implements, ornaments, pipes, and pottery, that a place where there is a liklihood of obtaining such relics of the past is soon dug over by parties who furnish the market with such specimens. I am sorry to add that a scientific spirit seldom actuates such work. In order that we may take advantage of good opportunities as they occur and carry on the work in a proper manner, it is greatly desired that two or three thousand dollars be added to our annual income. It must not be forgotten that our regular income for all purposes of the Museum is only a little over two thousand dollars and that with this sum we are obliged to care for the large Museum building, provide heat, light, and water, pay our express and postage and all incidentals of Museum administration. It can be readily seen, therefore, that for the increase of collections and their

proper arrangement, as well as for many other purposes, we are entirely dependent upon voluntary aid.

Instruction. — Another step has been taken during the past year toward a closer union between the Museum and the University. American Archaeology and Ethnology is now on an equal footing with other departments and is Division XII. of the Faculty of Arts and Sciences. There are now three graduate students entered in this division, two in their second year and one in his first. Two young men whose names do not appear in this department in the College Catalogue, but who hope to make this subject their life work, are also studying with me as private students. Instruction in the laboratory and in the field is given to all these students.

It is my good fortune, owing to my appointment as Chief of the Department of Archaeology and Ethnology of the World's Columbian Exposition, to offer exceptional opportunities for field work and research in many lines of anthropological study, and I now have over thirty men and women employed in various researches in North, Central, and South America. Among these are many who have at times superintended work in the field for the Museum. During the summer vacation several advanced students of Harvard and Clark Universities have worked among the different Indian tribes, collecting anthropological data for the preparation of charts illustrative of the characteristics of the native peoples of America. Dr. Boas of Clark University is my chief assistant in this special work, and thousands of individuals have already been measured and special observations taken for this important research. While engaged in this work many assistants have collected materials for the representation of the customs of the tribes which they have visited. This work is still going on and other assistants are specially engaged in South and Central America, and in some parts of North America, making large archaeological and ethnological collections. While I am thus securing all the skilled assistants I can, and have in the corps several officers of the U. S. army and navy and Indian officials in Canada, I have naturally given to my own students and assistants the benefit of this great opportunity when it did not conflict with those offered by the Museum.

Mr. Dorsey, a graduate student in the Museum, was thus sent to Peru in May last and is still making archaeological researches there. Having made extensive excavations at Ancon, Arica, and other places, and in company with another party of the Exposition visited the famous ruins at Lake Titicaca, he is now probably making researches in the vicinity of Cuzco. For this work he was prepared by previous laboratory instruction and by a summer's work in the

field under my direction. In the same way Mr. Cook, a private student who has by my advice entered the Scientific School as a special student, was sent to the Serpent Mound and to Fort Hill in Ohio. At the latter place he assisted in exploration and received practical instruction in surveying by aiding in the survey of Fort Hill, preparatory for a model of that ancient fortification. Mr. Saville, a student-assistant holding the Visiting-Committee Fellowship, passed a short time in the exploration of an Indian burial-place near North Truro on Cape Cod, and then went to Fort Hill to carry on excavations and to take a number of photographs for the Museum. On his return from Ohio he gave his time to the preparation of the outfit for the Honduras Expedition. This expedition he has accompanied as assistant in special charge of the archaeological work, for which he is fitted by several seasons' work in Ohio under my direction, and by his work in Yucatan last winter under the personal supervision of Mr. Thompson. Mr. Owens, a graduate student in the Museum, after a winter's work in the Laboratory passed the summer at the Moki pueblo in Arizona, as an assistant with Dr. Fewkes of the Hemenway Expedition. He returned to the Museum at the opening of the College term, is this year the holder of the Hemenway Fellowship, and has accompanied the Honduras Expedition as executive officer and archaeological assistant. Mr. Gerrodette, the new and third graduate student is engaged in laboratory work, and is assisting me in the care of the many specimens arriving at Cambridge for the Exposition. Miss Fletcher, the holder of the Thaw Fellowship, has been since last April living with the Nez Percé Indians in Idaho, where she has been engaged as a government officer in allotting lands in severalty to the Indians of that tribe. While thus occupied she has had many opportunities to observe the customs of the Indians, to study their history, their legends and their mythology, and to collect many objects for the Museum. In this connection it is proper to note that a series of papers by Miss Fletcher is soon to be published in the Century Magazine. In these articles she will make known much that she has learned of the Indian character and customs during the many years she has passed among the Indian tribes of the West. Mrs. Nuttall is still in Europe where she is actively engaged in pursuing her researches in relation to ancient Mexican civilization, and has recently collected some important material for a third number of her series on the customs of the ancient Mexicans.

It will be seen by this brief sketch that great activity has prevailed during the past year in many directions; and I may also allude to several researches under my direction which, while specially connected with the Columbian Exposition, are important in advancing American

archaeology. Among these are Mr. Thompson's work in Yucatan, where he is taking moulds of several typical and interesting portions of the great stone structures with their elaborately carved ornaments; Mr. Volk's research on the glacial gravels and their relation to early man of the Delaware valley; Dr. Metz' and Mr. Moorehead's explorations in Ohio, where they have made many interesting and important discoveries in mounds and burial-places. However, enough has been said to make known the valuable opportunities now offered to students of anthropology and the demand which has suddenly arisen for trained workers in this line of research.

The practical use made of the Museum by teachers in the schools of Cambridge, Boston, and neighboring cities is constantly on the increase. Many teachers now bring their classes annually to our halls for special instruction. Among the classes that have thus visited the Museum and manifested an intelligent interest in the collections I will specially mention the graduating class of the Boston Normal School. On these occasions it is frequently my privilege to give brief talks in the Lecture-hall or to accompany the classes through the rooms of the building in order to call their attention to some special points of interest and to offer such explanation of the collections as will enable them to understand and carry away with them important facts relating to the early peoples of America.

In this connection I may mention that the American Oriental Society found in our Lecture-hall an appropriate place for holding one of its sessions during its meeting of last May.

At the request of the American Dental Association, Mr. G. W. Newton, a graduate student in the University, was employed by the Association to make a careful examination and record of the teeth and jaws of our collection of crania, which are to be studied and tabulated by the Committee. At the request of Dr. Eugene S. Talbot, Mr. Newton also made an extensive series of measurements to determine the normal width and length of the jaws in different races.

The Honduras Expedition. — It is with much pleasure that I refer to the important work which has just been inaugurated under the above title; an undertaking which, if sustained by liberal patrons, will be of the greatest importance to American archaeology and to the Museum. By the continued efforts of one who is deeply interested in American archaeology and the Museum, the government of Honduras in July last gave to the Museum by a special edict the charge of the antiquities of that country for a term of ten years, with the exclusive right of exploration under the protection of the government,

and with the privilege of bringing to the Museum one half of the collection obtained by our explorations of the ancient cities and burial-places within the borders of the country. This important decree is issued in the spirit of scientific research and it can but result in great benefit to Honduras by arousing an enlightened interest in her antiquities. Many material benefits to the country will also follow from our annual expeditions. On our part we expect to discover much of importance relating to that strange ruined city known as Copan, with its immense buildings of stone, its many carved monoliths with human figures in high relief, and strange hieroglyphs which must yield their meaning to the students who are now devoting themselves to the task of their interpretation. It will be for us to collect and preserve all such material, so that by means of specimens, photographs, and casts we may be able to furnish the student with the necessary means for this study. We also hope to learn many details relating to the position and structure of the buildings and their connection with the monoliths and accompanying blocks of stone, probably the gods and altars of the people. Many a deep problem of the past has been solved by the pick and spade, guided by minds trained in scientific research, and we have every reason to hope that after careful and long-continued excavation and study among these ruins and the adjacent territory some ray of light may break in upon the history of this unknown city and its mysterious builders. By the liberality of several friends the money deemed necessary for this year's work, which must be largely preparatory for that of the following years, has already been given. The expedition has been organized and thoroughly equipped for six months' work in Copan and is already on its way. Much to my regret my other duties will not permit me to personally lead the expedition this year. The full organization of the expedition for the present season's work is as follows: F. W. Putnam, director; C. P. Bowditch and F. C. Lowell, special committee of the Museum; M. H. Saville, scientific assistant; J. G. Owens, executive officer; H. W. Price, resident agent; Gorgonio Lopez, foreman, with his son and brother as special workmen. In organizing and equipping this expedition we have received very important assistance and advice from Mr. A. P. Maudslay of England, who has made a study of Copan, where he has spent more time than any other investigator and has taken moulds of many of the monoliths and altars for his comparative study of the hieroglyphs of Central America. Through his kind coöperation we have secured the services of Mr. Price who was with him in similar work at Palenque, and of the three members of the Lopez family of Guatemala who were his assistants in Copan.

The Building. — The gallery temporarily occupied by the Semitic Department has been furnished with cases, and the objects secured by the gift of Mr. Schiff and from other sources have been so arranged by Dr. Lyon as to illustrate several important periods in Semitic history and art. This collection was formally opened to the public on May 13th, and it has proved in many ways so interesting and so appropriate as an adjunct to the other collections in the building that the suggestion in my last report pertaining to the formation of a comprehensive archaeological museum is more than ever worthy of consideration.

Thanks to Mrs. Warren's timely gift of last year the cases for the second gallery and those around the walls of the main Exhibition-hall in the new part of the building have been put in place. The arrangement of specimens in these rooms will necessarily be slow, owing to the lack of assistance; although the wall-cases in the hall are filled with a part of the Charnay collection of casts referred to in the last report. This collection, representing the strange sculptures and hieroglyphs from the ruins of Mexico and Central America, is of the utmost importance in a study of American archaeology, and it will be a great misfortune if we are forced to part with it through lack of means for its purchase.

Gifts. — In this connection I have the pleasure of announcing the receipt from Dr. Alexander Agassiz of a full series of the Charnay photographs. These consist of 226 large photographs of hieroglyphs and various sculptures from the ancient ruins of Mexico and Central America. Dr. Agassiz has also given fifty-six photographs of archaeological and ethnological subjects from Peru and twenty-three from Martinique. Fifteen other photographs have been given by eight different persons; and we are greatly indebted to Mr. Charles P. Bowditch for twelve bromide prints, — enlargements from negatives by Mr. Sweet of several interesting ruins in Yucatan. These prints have been framed and are now hung on the walls of the Lecture-hall. Major William S. Beebe has presented to the library a manuscript volume on ancient Peruvian mythology. Seventy volumes and ninety-eight pamphlets relating to anthropology have been received by gift, catalogued, and added to the special library of the Museum.

Many gifts have been made to the collections during the year, but until these are catalogued they will not be referred to in detail. Two collections, however, should be specially mentioned; one is a small lot of stone implements found near the base of Mount Kineo in Maine, collected and presented by Mr. Lucius L. Hubbard. This lot con-

tains a number of leaf-shaped implements showing considerable weathering, and among them is the largest chipped implement I have ever seen from New England. The other is a fine series of stone implements and ornaments principally from the vicinity of Fall River. These specimens were collected during the past few years by Mr. Allan Cook who has entered the Museum as a private student, and as a pledge of his devotion has presented his entire private collection to the Museum.

By the kindness of Surgeon Billings, Curator of the Army Medical Museum, we have been furnished with a valuable addition to our anthropological laboratory in the form of an apparatus for holding skulls in such a manner that their correct outlines can be drawn on a plate of varnished glass by means of the periglyph, and Dr. J. C. McConnell has presented the Museum with a periglyph that he made expressly to accompany the apparatus.

Publications. — During the year the twenty-third and twenty-fourth annual reports were printed and issued under one cover. Numbers II. and III. of the Special Papers have also been printed. Number II. is an account of the Karankawa Indians by Dr. Albert S. Gatschet, with a vocabulary largely obtained from the late Mrs. Oliver of Lynn. The incidents leading to this fortunate preservation of a now extinct language of a tribe of Texan Indians are narrated in the paper, which also contains an historical account of the tribe. Number III. of the Papers is by Mrs. Zelia Nuttall and is an instructive and exhaustive discussion of a singular weapon of the ancient Mexicans, the Atlatl, which, originally designed as a spear-thrower, became in time a ceremonial object of great importance. Mrs. Nuttall in her clear and comprehensive way has followed the various forms of the implement as shown in the Mexican picture writing, and in the ancient Mexican sculptures, and has incidentally treated of other interesting matters relating to the ancient Mexicans. This paper is illustrated by three plates from drawings made under Mrs. Nuttall's direction in Dresden and generously furnished to the Museum.

The Visiting Committee appointed by the Overseers has continued to take an active interest in the work of the Museum and has held several meetings during the year for the consideration of affairs pertaining to the Museum and the means for its advancement. It will be seen by this and the preceding report that their efforts have been helpful to the Museum in many ways.

The expenses for the year were as follows: —

Building, repairs, cases, furniture, care and incidentals	$5,990.64	
Fuel, gas, and water	382.08	
Museum, incidentals including postage, express, and telephone	657.26	
Publications, photographic material, etc.	606.48	
Library	35.97	
On account of survey and model of Serpent Mound Park	466.00	
Explorations and collections	972.92	
Visiting-Committee Fellowship, 11 months	458.34	
Salaries	3,630.46	
Balance to new account	186.74	
		$13,386.89

Of the above the Semitic Collection has paid on account of cases and incidentals	$2,536.35	
The total income of the Peabody Fund	6,042.96	
Balance from last account	617.84	
Balance of Mrs. S. D. Warren's gift for cases	2,638.19	
Gift of Mrs. Esther Herrman	500.00	
" " Mr. James H. Jones	100.00	
" " Mrs. Zelia Nuttall	100.00	
" " Major W. S. Beebee	250.00	
" " Mrs. N. E. Baylies	25.00	
" " New England Telephone & Telegraph Co.	35.00	
Publications	41.55	
Visiting Committee Fellowship	500.00	
		$13,386.89

Respectfully submitted,

F. W. PUTNAM,

Peabody Professor of American Archaeology and Ethnology, and Curator of the Museum.

CAMBRIDGE, December 2, 1891.

THE SEMITIC MUSEUM.

TO THE PRESIDENT OF THE UNIVERSITY:

SIR, — In the President's Report for the year 1889–90 (pp. 33, 34) record was made of the gift of $10,000 by Mr. Jacob H. Schiff for the purchase of objects illustrating Semitic life, history, and art. It was also stated that a temporary home had been found for the collection in the new section of the Peabody Museum and that arrangements had been made for securing casts of many of the most interesting monuments in the European museums.

While most of the casts ordered are Assyrian, there are also reproductions of many Hebrew, Phoenician, Arabic, Hittite, and Persian monuments. These occupy more than half of our space for exhibition.

We have received by purchase a lot of Babylonian-Assyrian engraved seals and several collections of cuneiform tablets. With these have been incorporated six tablets given to the University by Miss E. F. Mason, and two collections belonging to the Divinity School, one of these being the gift of Mr. Stephen Salisbury.

From Egypt we have twenty-five stones with mortuary inscriptions in the Cufic character, several of which belong to the eighth and ninth centuries of our era.

There is likewise an interesting small collection of manuscripts, Hebrew, Syriac, and Arabic, and we have just received a lot of forty-six Arabic manuscripts, several of which are of considerable age and value. There has not been time to prepare these for exhibition.

A beginning has been made in collecting Semitic coins. Among these are fine specimens of the Hebrew shekel and half shekel.

Of Photographs we have many hundreds, illustrating Semitic scenery, architecture, and manners and customs. About two hundred are on exhibition, but many of these will now have to be removed to make room for casts.

The collection has just been increased by the arrival of a lot of Babylonian, Moabite, Arabic, and Persian casts, which are among the finest in our possession. Some of these will require special cases because they are figures in the round and should, therefore, be seen on all sides.

The Museum has been enriched by friends at home and abroad, who have given many small but interesting objects. The kindness of the authorities of the museums in London, Paris, and Berlin deserves special mention.

The work of arranging the objects and preparing labels occupied much time in the winter and spring of 1890–91. Some of the shorter of these labels are to be replaced by longer ones. The new manuscripts are also to be studied and described. It is our purpose to issue a catalogue of the collections.

On May 13, 1891, the Museum was formally opened. Addresses were made on the occasion by the President of the University, by Mr. Schiff, and by the professors of the Semitic Department. The collection is now open daily, Sundays excepted, from 9 A.M. to 5 P.M.

The Museum is already much used in illustrating the Semitic instruction offered in the University. For research work and acquaintance with the sources casts have scarcely less value than

originals. The Museum attracts also many visitors, both students and others.

About one half of Mr. Schiff's gift remains unexpended, but orders are now out which will require most of the remainder.

Of the $3000 placed at our disposal for providing the gallery with cases only about $100 remain. There is pressing need of about $1000 more to make the special cases for the objects in the round. Some of these objects will be placed on exhibition in the wall cases, but it is much to be hoped that some friend will provide the means to exhibit them to better advantage.

The gallery is now nearly full and will soon be crowded. We are, therefore, confronted with the problem of more space. Until this problem shall be solved we shall be able henceforth to purchase only manuscripts and small objects. The usefulness of the Museum for illustration and research would be further increased if the Semitic lecture-rooms and the Semitic library could be combined with it under one roof.

D. G. LYON, *Curator.*

DECEMBER 19, 1891.

APPENDIX.

RESIGNATIONS.

HENRY PICKERING WALCOTT, Member of the Committee on the Regulation of Athletic Sports, November 24, 1890.

CLEMENT LAWRENCE SMITH, Dean of Harvard College and Member of the College Administrative Board, February 9, 1891, to take effect June 24, 1891.

FRANCIS MINOT, Hersey Professor of the Theory and Practice of Medicine, April 27, 1891, to take effect September 1, 1891.

ADOLPHE COHN, Assistant Professor of French, May 12, 1891, to take effect September 1, 1891.

WILLIAM BURDELLE BENTLEY,
GEORGE PHILIP WARDNER, } Proctors, March 23, 1891.

HENRY WILLARD WILLIAMS, Professor of Ophthalmology, May 25, 1891, to take effect September 1, 1891.

GEORGE PIERCE BAKER, JR., Instructor in English, June 1, 1891.

WINFIELD SCOTT CHAPLIN, Chairman of the Parietal Committee, June 23, 1891.

HAROLD WHITING, Instructor in Physics, June 23, 1891.

CHARLES PROSPER FAGNANI, Lecturer on the New Testament, June 23, 1891.

WINFIELD SCOTT CHAPLIN, Professor of Engineering and Dean of the Lawrence Scientific School, September 29, 1891, to take effect October 1, 1891.

FRANK WALTER NICOLSON, Instructor in Latin, September 29, 1891.

JOSEPH TORREY, Jr., Assistant in Chemistry, September 29, 1891.

APPOINTMENTS.

[UNLIMITED, OR FOR TERMS LONGER THAN ONE YEAR.]

JOSIAH ROYCE, to be Assistant Professor of Philosophy for five years from September 1, 1890, October 22, 1890.

HENRY PICKERING WALCOTT, to be Fellow of the Corporation, October 22, 1890.

ROBERT SWAIN MORISON, to be Librarian of the Divinity School, October 22, 1890.

ADOLPHE COHN, to be Assistant Professor of French for five years from September 1, 1890, November 24, 1890.

HENRY WARREN TORREY,
FRANCIS JAMES CHILD,
CHARLES ELIOT NORTON,
CHARLES FRANKLIN DUNBAR,
CRAWFORD HOWELL TOY,
GEORGE LINCOLN GOODALE, } to be Members of the Council of the Library for three years from January 1, 1891, December 8, 1890.

DAVID GORDON LYON, to be Curator of the Semitic Museum, January 12, 1891.

LE BARON RUSSELL BRIGGS, to be Dean of Harvard College, to serve from June 24, 1891, March 23, 1891.

PAUL HENRY HANUS, to be Assistant Professor of the History and the Art of Teaching for five years from September 1, 1891, March 23, 1891.

MORRIS HICKY MORGAN, to be Assistant Professor of Greek and Latin for five years from September 1, 1891, April 13, 1891.

ARTHUR RICHMOND MARSH, to be Assistant Professor of Comparative Literature for five years from September 1, 1891, April 27, 1891.

CHARLES HERBERT MOORE, to be Assistant Professor of Design in the Fine Arts for five years from September 1, 1891, April 27, 1891.

ROLAND THAXTER, to be Assistant Professor of Cryptogamic Botany for five years from September 1, 1891, May 12, 1891.

HUGO KARL SCHILLING, to be Assistant Professor of German for five years from September 1, 1891, May 25, 1891.

EDWARD CAMPBELL BECKETT, to be Instructor in Operative Veterinary Surgery and Superintendent of the Veterinary Hospital for three years from September 1, 1891, June 1, 1891.

GEORGE ALONZO BARTLETT, to be Associate Professor of German and Regent, June 8, 1891.

OLIVER FAIRFIELD WADSWORTH, to be Professor of Ophthalmology, June 8, 1891.

EDWARD HICKLING BRADFORD, to be Instructor in Surgery and Orthopedics, June 23, 1891.

NATHANIEL THAYER KIDDER, to be Instructor in Botany, June 23, 1891.

[FOR ONE YEAR OR LESS.]

For 1890-91.

JOHN WILLIAMS WHITE,
JAMES BARR AMES,
GEORGE ALONZO BARTLETT,
HENRY PICKERING WALCOTT,
WILLIAM HOOPER,
GEORGE BURNAP MORRISON,
} to be a Committee on the Regulation of Athletic Sports, October 1, 1890.

FREDERICK EDWARD CHENEY, to be Instructor in Ophthalmology, October 1, 1890.

DANIEL DAVID LEE, to be Instructor in Anatomy, October 1, 1890.

KÉNELM WINSLOW, to be Instructor in Materia Medica and Botany, October 1, 1890.

CHARLES REID BARNES, to be Assistant in the Herbarium, October 1, 1890.

HENRY NEWELL HERMAN, to be Assistant in Chemistry, October 1, 1890.

WALTER LOUIS JENNINGS, to be Assistant in Chemistry, October 1, 1890.

BENJAMIN LINCOLN ROBINSON, to be Assistant in the Herbarium, October 1, 1890.

RALPH STOCKMAN TARR, to be Assistant in Geology, October 1, 1890.

ARTHUR BROWN WILLMOTT, to be Assistant in Mineralogy, October 1, 1890.

JAY BACKUS WOODWORTH, to be Assistant in Geology, October 1, 1890.

WILLIAM BURDELLE BENTLEY,
WILFRED BOLSTER,
FREDERICK WESLEY DEWART,
CARL ADOLPH EWALD,
THOMAS WALTON GALLOWAY,
HENRY HUDSON,
FRANCIS CLEVELAND HUNTINGTON,
FREDERICK BOYDEN JACOBS,
CHARLES LOUIS MIX,
FRANKLIN DIXON PEALE,
EDGAR JUDSON RICH,
FRANKLIN CHESTER SOUTHWORTH,
CHARLES MARTIN THAYER,
DAVID CLARENCE TORREY,
GEORGE PHILIP WARDNER,
} to be Proctors, October 1, 1890.

EDWARD CAMPBELL BECKETT, to be Instructor in Operative Veterinary Surgery, October 8, 1890.

ARTHUR ASTOR CAREY, to be Instructor in English, October 8, 1890.

EDWARD STANLEY ABBOTT, to be Assistant in Histology, October 8, 1890.

HENRY JACKSON, to be Assistant in Bacteriology, October 8, 1890.

FRANK STANLEY STEBBINS, to be Proctor, October 8, 1890.

JOHN WESLEY CHURCHILL, to be Instructor in Elocution in the Divinity School, October 22, 1890.

JOHN BAKER SWIFT, to be Clinical Instructor in Diseases of Women, October 22, 1890.

FREDERICK HAROLD BAILEY, to be Assistant in Mathematics, October 22, 1890.

FRANK BURR MALLORY, to be Assistant in Histology, October 22, 1890.

JOSEPH TORREY, Jr., to be Assistant in Chemistry, October 22, 1890.

ROBERT DECOURCY WARD, to be Assistant in Physical Geography and Meteorology, October 22, 1890.

BYRON SATTERLEE HURLBUT, to be Assistant in English, November 10, 1890.

WILLIAM FORREST PILLSBURY, to be Instructor in History, November 10, 1890.

WILLIAM CODMAN STURGIS, to be Assistant in Cryptogamic Botany, November 10, 1890.

WILLIAM HOMER WARREN, to be Assistant in Chemistry, November 10, 1890.

CHARLES BENEDICT DAVENPORT, to be Proctor, November 10, 1890.

MAURICE HOWE RICHARDSON, to be a Member of the Committee on the Regulation of Athletic Sports, November 24, 1890.

BENJAMIN IVES GILMAN, to be Lecturer on the Psychology of Music, November 24, 1890.

STANISLAS DANION, to be Instructor in French, November 24, 1890.

NATHANIEL THAYER KIDDER, to be Instructor in Botany, November 24, 1890.

ALBERT HENRY TUTTLE, to be Instructor in Entomology, November 24, 1890.

WILLIAM GRAY,
HENRY LEE,
WILLIAM STURGIS BIGELOW,
} to be Trustees of the Museum of Fine Arts, December 22, 1890.

HENRY CARY BADGER, to be Curator of Maps, January 26, 1891.

JONATHAN BRACE CHITTENDEN,
CHARLES ROCHESTER EASTMAN,
} to be Proctors, March 23, 1891.

JOHN GEORGE JACK, to be Arboretum Lecturer, April 13, 1891.

For 1891–92.

FREDERICK PERRY FISH, to be Lecturer on Patent Law, April 18, 1891.
JOSEPH HENRY BEALE, Jr., to be Lecturer on Criminal Law and Carriers, May 12, 1891.

CHARLES PROSPER FAGNANI, to be Lecturer on the New Testament, April 27, 1891.
EDWARD HALE, to be Instructor in Homiletics, May 25, 1891.
BROOKE HERFORD, WILLIAM JEWETT TUCKER, } to be Lecturers on Pastoral Care and the Conduct of Worship, June 1, 1891.
FRANCIS ALBERT CHRISTIE, to be Lecturer on the New Testament, June 23, 1891.
JOHN WESLEY CHURCHILL, to be Instructor in Elocution in the Divinity School, September 29, 1891.

DANIEL DENISON SLADE, to be Lecturer on Comparative Osteology, May 25, 1891.
MAXIME BÔCHER, to be Instructor in Mathematics, May 25, 1891.
ARTHUR ASTOR CAREY, to be Instructor in English, May 25, 1891.
WILLIAM MORSE COLE, to be Instructor in Political Economy, May 25, 1891.
EDWARD CUMMINGS, to be Instructor in Political Economy, May 25, 1891.
STANISLAS DANION, to be Instructor in French, May 25, 1891.
CHARLES BENEDICT DAVENPORT, to be Instructor in Zoölogy, May 25, 1891.
JEFFERSON BUTLER FLETCHER, to be Instructor in English, May 25, 1891.
WILLIAM FRANCIS GANONG, to be Instructor in Botany, May 25, 1891.
THADDEUS WILLIAM HARRIS, to be Instructor in Geology, May 25, 1891.
JOHN JOSEPH HAYES, to be Instructor in Elocution, May 25, 1891.
BYRON SATTERLEE HURLBUT, to be Instructor in English, May 25, 1891.
HENRY BURROWES LATHROP, to be Instructor in English, May 25, 1891.
ALFRED BULL NICHOLS, to be Instructor in German, May 25, 1891.
FRANK WALTER NICOLSON, to be Instructor in Latin, May 25, 1891.
WILLIAM FOGG OSGOOD, to be Instructor in Mathematics, May 25, 1891.
MAX POLL, to be Instructor in German, May 25, 1891.
THEODORE WILLIAM RICHARDS, to be Instructor in Chemistry, May 25, 1891.
WALLACE CLEMENT SABINE, to be Instructor in Physics, May 25, 1891.
GEORGE SANTAYANA, to be Instructor in Philosophy, May 25, 1891.
WILLIAM SCHOFIELD, to be Instructor in Roman Law, May 25, 1891.
HORACE ANDREW DAVIS, to be Assistant in Forensics, May 25, 1891.
CLARENCE ALBERT HIGHT, to be Assistant in Forensics, May 25, 1891.
HARRY MCCORMICK KELLY, to be Assistant in Zoölogy, May 25, 1891.
GEORGE ANDREW REISNER, to be Assistant in Semitic Languages, May 25, 1891.

BROOKE HERFORD,
LYMAN ABBOTT,
HENRY VAN DYKE,
CHARLES CARROLL EVERETT,
LEIGHTON PARKS,
} to be Preachers to the University, June 8, 1891.

CHARLES SPRAGUE SMITH, to be Lecturer on the Icelandic Saga, June 8, 1891.
FRANK JOHN VIETS DAKIN, to be Assistant in Fine Arts, June 8, 1891.
RICHARD ELWOOD DODGE, to be Assistant in Geology, June 8, 1891.
HENRY NEWELL HERMAN, to be Assistant in Chemistry, June 8, 1891.

HENRY BARNARD KUMMEL, to be Assistant in Geology, June 8, 1891.
HERBERT NICHOLS, to be Assistant in Psychology, June 8, 1891.
WINFIELD SCOTT NICKERSON, to be Assistant in Zoölogy, June 8, 1891.
GEORGE JAMES PEIRCE, to be Assistant in Botany, June 8, 1891.
WILLIAM LYON PHELPS, to be Assistant in English, June 8, 1891.
HERBERT MAULE RICHARDS, to be Assistant in Botany, June 8, 1891.
DAVID ELLSWORTH SPENCER, to be Assistant in History, June 8, 1891.
JOSEPH TORREY, Jr., to be Assistant in Chemistry, June 8, 1891.
ROBERT DECOURCY WARD, to be Assistant in Physical Geography and Meteorology, June 8, 1891.
LEWIS GARDNER WESTGATE, to be Assistant in Geology, June 8, 1891.
JAY BACKUS WOODWORTH, to be Assistant in Geology, June 8, 1891.

LEBARON RUSSELL BRIGGS,
CHARLES ELIOT NORTON,
CHARLES JOYCE WHITE,
GEORGE ALONZO BARTLETT,
WILLIAM MORRIS DAVIS,
WILLIAM ELWOOD BYERLY,
EPHRAIM EMERTON.
CHARLES ROCKWELL LANMAN,
SILAS MARCUS MACVANE,
FREEMAN SNOW,
JOHN HENRY WRIGHT,
BENJAMIN OSGOOD PEIRCE,
OLIVER WHIPPLE HUNTINGTON,
MORRIS HICKY MORGAN,
GEORGE LYMAN KITTREDGE,
ARTHUR RICHMOND MARSH.
} to be Members of the Administrative Board of Harvard College, June 23, 1891.

WINFIELD SCOTT CHAPLIN,
NATHANIEL SOUTHGATE SHALER,
HENRY BARKER HILL,
EDWIN HERBERT HALL,
HANS CARL GÜNTHER VON JAGEMANN,
PAUL HENRY HANUS,
JOHN ELIOT WOLFF,
} to be Members of the Administrative Board of the Lawrence Scientific School, June 23, 1891.

JAMES MILLS PEIRCE,
WILLIAM WATSON GOODWIN,
GEORGE LINCOLN GOODALE,
JOHN TROWBRIDGE,
CHARLES LORING JACKSON,
EDWARD LAURENS MARK,
EDWARD STEVENS SHELDON,
DAVID GORDON LYON,
EDWARD CHANNING,
FRANK WILLIAM TAUSSIG,
} to be Members of the Administrative Board of the Graduate School, June 23, 1891.

SAMUEL SILAS CURRY, to be Instructor in Elocution, June 23, 1891.
HERMAN WADSWORTH HALEY, to be Instructor in Latin, September 29, 1891.
JOSEPH TORREY, Jr., to be Instructor in Chemistry, September 29, 1891.

EDGAR BUCKINGHAM,
GEORGE AUGUSTUS CHAMBERLAIN,
CHARLES AVERELL RICH,
} to be Assistants in Physics, September 29, 1891.

OLIVER JAY FAIRFIELD, to be Proctor, June 8, 1891.

FREDERICK REDMAN CLOW,
FREDERICK WESLEY DEWART,
CHARLES ROCHESTER EASTMAN,
CARL ADOLF EWALD,
JAMES MOTT HALLOWELL,
HENRY HUDSON,
FREDERICK BOYDEN JACOBS,
HARRY MCCORMICK KELLY,
AUGUSTUS WHITE LONG,
CHARLES HADDON MCINTYRE,
CHARLES LOUIS MIX,
EDWARD CLARK MOREY,
WINFIELD SCOTT NICKERSON,
FRANKLIN CHESTER SOUTHWORTH,
FRANK STANLEY STEBBINS,
DAVID CLARENCE TORREY,
ARTHUR BROWN WILLMOTT,
} to be Proctors, June 23, 1891.

LEWIS JEROME JOHNSON, to be Instructor in Engineering, May 25, 1891.

JOHN CASSAN WAIT, to be Instructor in Surveying and Drawing, May 25, 1891.

ROBERT WHEELER WILLSON, to be Instructor in Astronomy, June 23, 1891.

COMFORT AVERY ADAMS, Jr., to be Instructor in Electrical Engineering, September 29, 1891.

SAMUEL HOLMES DURGIN, to be Lecturer on Hygiene, June 23, 1891.

THEODORE WILLIS FISHER, to be Lecturer on Mental Diseases, June 23, 1891.

EDWARD MARSHALL BUCKINGHAM, to be Instructor in Diseases of Children, June 23, 1891.

HERBERT LESLIE BURRELL, to be Instructor in Clinical Surgery, June 23, 1891.

ELBRIDGE GERRY CUTLER, to be Instructor in the Theory and Practice of Physic, June 23, 1891.

FRANCIS HENRY DAVENPORT, to be Instructor in Gynaecology, June 23, 1891.

HAROLD CLARENCE ERNST, to be Instructor in Bacteriology, June 23, 1891.

WILLIAM WHITWORTH GANNETT, to be Instructor in Clinical Medicine, June 23, 1891.

GEORGE MINOT GARLAND, to be Instructor in Clinical Medicine, June 23, 1891.

CHARLES MONTRAVILLE GREEN, to be Instructor in Obstetrics, June 23, 1891.

FRANKLIN HENRY HOOPER, to be Instructor in Laryngology, June 23, 1891.

JAMES JACKSON PUTNAM, to be Instructor in Diseases of the Nervous System, June 23, 1891.

HENRY PARKER QUINCY, to be Instructor in Histology, June 23, 1891.

HERMAN FRANK VICKERY, to be Instructor in Clinical Medicine, June 23, 1891.

ARTHUR TRACY CABOT, to be Clinical Instructor in Genito-urinary Surgery, June 23, 1891.

EDWARD COWLES, to be Clinical Instructor in Mental Diseases, June 23, 1891.

GEORGE WASHINGTON GAY, to be Clinical Instructor in Surgery, June 23, 1891.

FRANCIS BOOTT GREENOUGH, to be Clinical Instructor in Syphilis, June 23, 1891.

JOHN HOMANS, to be Clinical Instructor in the Diagnosis and Treatment of Ovarian Tumors, June 23, 1891.

PHILIP COOMBS KNAPP, to be Clinical Instructor in Diseases of the Nervous System, June 23, 1891.

ABNER POST, to be Clinical Instructor in Syphilis, June 23, 1891.

JOHN BAKER SWIFT, to be Clinical Instructor in Diseases of Women, June 23, 1891.

GEORGE LINCOLN WALTON, to be Clinical Instructor in Diseases of the Nervous System, June 23, 1891.

FRANCIS SEDGWICK WATSON, to be Clinical Instructor in Genito-urinary Surgery, June 23, 1891.

FRANCIS AUGUSTINE HARRIS, to be Demonstrator of Medico-legal Examinations, June 23, 1891.

WILLIAM MERRITT CONANT, to be Assistant Demonstrator of Anatomy, June 23, 1891.

EDWARD STANLEY ABBOTT, to be Assistant in Histology, June 23, 1891.

WILLIAM SOHIER BRYANT, to be Assistant in Anatomy, June 23, 1891.

JOHN WHEELOCK ELLIOT, to be Assistant in Clinical Surgery, June 23, 1891.

WILLIAM CARROLL EMERSON, to be Assistant in Chemistry, June 23, 1891.

FRANK BISHOP HARRINGTON, to be Assistant in Clinical Surgery, June 23, 1891.

HENRY JACKSON, to be Assistant in Bacteriology, June 23, 1891.

FRANK BURR MALLORY, to be Assistant in Histology, June 23, 1891.

GEORGE HOWARD MONKS, to be Assistant in Clinical and Operative Surgery, June 23, 1891.

JOHN CUMMINGS MUNRO, to be Assistant in Anatomy, June 23, 1891.

EDWARD REYNOLDS, to be Assistant in Obstetrics, June 23, 1891.

CHARLES LOCKE SCUDDER, to be Assistant in Clinical Surgery, June 23, 1891.

THOMAS FOSTER SHERMAN, to be Assistant in Diseases of Children, June 23, 1891.

CHARLES PRATT STRONG, to be Assistant in Gynaecology, June 13, 1891.

CHARLES WENDELL TOWNSEND, to be Assistant in Obstetrics, June 23, 1891.

FRANCIS SEDGWICK WATSON, to be Assistant in Clinical Surgery, June 23, 1891.

CHARLES FRANCIS WITHINGTON, to be Assistant in Clinical Medicine, June 23, 1891.

CHARLES POMEROY WORCESTER, to be Assistant in Chemistry and Secretary of the Medical Faculty, June 23, 1891.

FRANK BURR MALLORY,
HENRY FRANCIS SEARS,
} to be Assistants in Pathological Anatomy, September 29, 1891.

FREDERICK EUGENE BANFIELD,
WALDO ELIAS BOARDMAN,
FOREST GREENWOOD EDDY,
HENRY WEBSTER GILLETT,
VIRGIL CLARENCE POND,
CHARLES HUTCHINS TAFT,
HENRY LAURISTON UPHAM,
} to be Instructors in Operative Dentistry, June 23, 1891.

EDWARD EARL HOPKINS, to be Instructor in Crown and Bridge Work, June 23, 1891.

GEORGE HOWARD MONKS, to be Instructor in Surgical Pathology, June 23, 1891.

ARTHUR HENRY STODDARD, to be Instructor in Mechanical Dentistry, June 23, 1891.

GEORGE LINCOLN WALTON, to be Instructor in Neurology, June 23, 1891.

CHARLES POMEROY WORCESTER, to be Instructor in Dental Chemistry, June 23, 1891.

WILLIAM PARKER COOKE,
DWIGHT MOSES CLAPP,
WILLIAM HENRY POTTER,
} to be Clinical Lecturers in Operative Dentistry, June 23, 1891.

HENRY MICHAEL CLIFFORD, to be Demonstrator of Operative Dentistry, June 23, 1891.

PATRICK WILLIAM MORIARTY, to be Demonstrator of Mechanical Dentistry, June 23, 1891.

GEORGES ANTOINE BROUILLET,
WILLIAM FREDERICK GAY,
CHARLES ERNEST PERKINS,
} to be Assistant Demonstrators of Operative Dentistry, June 23, 1891.

WILLIAM ORISON UNDERWOOD, to be Lecturer upon Warranty and Evidence, February 9, 1891.

FREDERICK HUNTINGTON OSGOOD, to be Instructor in Cattle Practice, February 9, 1891.

WILBERT SOULE, to be Resident Surgeon at the Veterinary Hospital, June 1, 1891.

NUMBER OF ORDINARY DEGREES IN 1891.

Bachelors of Arts of the Class of 1891	283
Bachelors of Arts out of course	11
Bachelors of Science	2
Bachelor of Science out of course	1
Bachelor of Divinity	3
Bachelors of Divinity and Masters of Arts	3
Bachelors of Laws	29
Bachelors of Laws and Masters of Arts	17
Bachelors of Laws out of course	5
Doctors of Medicine	55
Doctors of Medicine and Masters of Arts	11
Doctors of Dental Medicine	14
Doctor of Science	1
Doctors of Veterinary Medicine	6
Masters of Arts	44
Master of Arts out of course	1
Doctors of Philosophy and Masters of Arts	7
Total	498

ANNOUNCEMENT OF COURSES FOR TEACHERS ON METHODS OF INSTRUCTION.

The Faculty of Arts and Sciences offers, during the academic year 1891-92, the following special courses on "Methods of Instruction," adapted to the purposes of teachers, and of persons intending to become teachers. These courses are open to men who are graduates of colleges or scientific schools, or who are otherwise known to be of suitable age and attainments, under the same conditions as those which govern admission to the Graduate School. Students pursuing any of these courses will be under the supervision of a special committee of the Faculty of Arts and Sciences, and will be responsible to that committee for the faithful use of the opportunities offered. Upon completing the instruction offered, or any definite portion thereof such as the Faculty shall in each case approve as sufficient, and upon passing satisfactory examinations, students will receive certificates of the work actually done.

The Instruction offered relates to the History of Teaching, the Theory and Art of Teaching, and to the Methods of Elementary Teaching in the following topics: Greek, Latin, English, German, French, History, Mathematics, Physics, Chemistry, Zoölogy, Botany, Geology, and Geography.

In each of these topics a course of lectures, by one or more instructors belonging to the department in question, will form the core of the instruction. In addition, students will be required to perform tasks such as are indicated in the following special announcements of the various departments. This additional work will include practical exercises, conferences, and attendance upon courses of instruction already included in the general list of those offered by the Faculty. A course of twelve lectures will also be given on "Topics in Psychology of Interest to Teachers," by Professor WILLIAM JAMES of the Department of Philosophy.

The special announcements of courses in the individual topics are: —

I. THE HISTORY, THEORY, AND ART OF TEACHING.

1. History of Teaching and of Educational Theories. LECTURES AND DISCUSSIONS twice a week during the year. Two essays.

2. Theory of Teaching. — The psychological basis of methods; critical examination of Educational Doctrines. LECTURES AND DISCUSSIONS once a week during the year. Two essays.

3. The Art of Teaching. — General school-room practice; management; supervision; government and organization of public schools and of academies. LECTURES AND DISCUSSIONS twice a week during the year.

ADDITIONAL EXERCISES: Students will be expected to observe the teaching in some designated school or schools in the vicinity of the University and to present reports of what they see at weekly meetings during the second half-year.

These courses will be conducted by Assistant Professor PAUL H. HANUS.

II. GREEK.

1. LECTURES (once a week during the second half-year). TOPICS: Discussion of existing methods of acquiring the elements. Outline of method recommended in teaching forms and syntax. Method of securing the practical application of the knowledge acquired. The Art of Reading. Acquisition of a vocabulary. Translation and retranslation. — Review of Grammar during the second year's work in school. Wider application of the principles of "Reading at Sight," and of the "Group System" in the acquisition of a vocabulary. Method of teaching the facts of Geography, History, and Antiquities. Greek Prose Composition. — Method of teaching the dialectical and syntactical peculiarities of Herodotus and Homer. Amounts to be read. Homeric Verse. Geography, History, and Antiquities. Literary treatment. — List of books to be used or consulted.

2. PRACTICAL EXERCISES: Discussion of topics suggested by members of the course. — Practice in outlining lessons, in construction of exercises, in formation of word-groups, in selection of passages for translation at sight, in composing English passages to be translated into Greek, and in arranging facts of Geography, History, and Antiquities for presentation to a class.

The course will be under the general direction of Professor J. W. WHITE.

III. LATIN.

1. LECTURES, CONFERENCES, AND PRACTICAL EXERCISES: Once a week, first half-year. TOPICS: Methods of teaching the rudiments. Mastery of forms and constructions. Oral and written exercises. Acquisition of a vocabulary. Translation of disconnected sentences from and into Latin. First practice in reading. Reading aloud. — Proper stage for introducing continuous reading (Caesar, etc.). Methods of teaching to read continuous narrative. Proper methods of study. Use of the lexicon. Etymology. Syntax. History, Geography, and Antiquities. Translation, oral and written. Reading at sight. Composition. — Reading of more advanced prose. Reading of poetry. Prosody and metre. Mythology.

2. ADDITIONAL EXERCISES: Opportunities will also be provided for the discussion of topics suggested by the students. Practical exercises will be given in the study of more difficult Latin authors.

The course will be under the general direction of Professor GREENOUGH.

IV. ENGLISH.

1. LECTURES (fifteen in number). TOPICS: The General Equipment of a teacher of English. The teaching of Etymology, of Grammar, of Rhetoric, of Composition, and of English Literature. Discussion of text-books and class-methods. The Relation of the Study of English to other studies, and its value as mental and moral training.

2. ADDITIONAL EXERCISES: Students will be required to attend certain specified courses known as English *A*, English 5, English 2, and English 9 (see the General Announcement of the Courses of Instruction provided by the Faculty of Arts and Sciences in 1891–92). — There will also be practical exercises in the criticism of Themes.

The course will be under the general direction of Professor A. S. HILL and Professor BRIGGS.

V. GERMAN.

1. LECTURES (ten in number). TOPICS: Methods of teaching the German language. The selection of text-books. Reference-books. Home reading. Other topics.

2. ADDITIONAL EXERCISES: Attendance at five recitations in German *A*, *B*, *C*, 1*a*, 1*b*, 9, 2, 3, 4 each, making forty-five recitations in all (see the General Announcement referred to above, under the ENGLISH DEPARTMENT, for accounts of these courses). A written analysis and annotation of ten to fifteen pages of a text suitable for beginners. A written report upon some pedagogical treatise bearing upon instruction in German, such treatise to be assigned by the department. Conducting of a recitation in an elementary class in the presence of the department.

The course will be under the general direction of Assistant Professor BARTLETT.

VI. FRENCH.

1. LECTURES (twelve in number). TOPICS: Methods of teaching French. — What is practical and possible in certain cases. — Text-books. — Oral teaching. — Grammar. — Pronunciation. — How to read a French book. — The use and misuse of translation from French into English and from English into French. — The place of Historical Grammar in elementary teaching. — How to lead the pupil to read and think in French without the interposition of English. — Reference books.

2. PRACTICAL EXERCISES: Students will be required to attend fifteen recitations in all, in at least two of the elementary courses, and these will be followed by conferences with the instructor of the course attended. The dates of attendance will be announced later. Students will also be permitted to attend any of the courses in the French Department.

The course will be under the general direction of Professor BÔCHER.

VII. HISTORY.

1. LECTURES (fifteen in number). TOPICS: Methods of teaching, choice of text-books, selection of topics, the proper place of chronology, geography, biography, etc. in historical study.

2. PRACTICAL EXERCISES: Work in the Library. — Use of books, training in topical work, etc. to illustrate the methods best adapted to instruction in High Schools.

3. ADDITIONAL EXERCISES: Attendance at specified College exercises, and the opportunity of visiting other regular exercises in History in the College and the Graduate School.

The course will be under the general direction of Professor EMERTON and Assistant Professor HART. — The other instructors of the History Department will give their coöperation as desired.

VIII. MATHEMATICS.

1. LECTURES (twelve in number). TOPICS: The teaching of Algebra. Three lectures by Professor J. M. PEIRCE. — The teaching of Plane and Solid Geometry. Three lectures by Professor BYERLY. — The teaching of Plane Trigonometry and its Applications. Three lectures by Professor C. J. WHITE. — The teaching of Elementary Analytic Geometry. Three lectures by Professor B. O. PEIRCE.

[In each case the design will be to call attention to leading principles and methods belonging to the subject itself, which ought to be held in view by teachers, as well as to offer suggestions concerning the practical art of teaching.]

2. ADDITIONAL EXERCISES: Students who wish to receive a certificate will be required to attend one of the four courses lettered *A*, *B*, *D*, and *E* (see the General Announcement referred to above, under the ENGLISH DEPARTMENT, for accounts of these courses), and to pass all examinations and do all the regular work in the same.

IX. PHYSICS.

1. LECTURES (three in number). TOPICS: The range of the science of Physics, the objects to be sought, and the method to be followed in the study of Physics.

2. ADDITIONAL EXERCISES: Attendance upon the exercises of Physics *B* for the year, or attendance upon the exercises of Physics *C* or Physics 1 for either the first or the second half-year. Occasional demonstrations by members of the teachers' class, before other members of the same class, in the use of physical apparatus and the methods of physical experimentation.

The course will be under the general direction of Assistant Professor HALL.

X. CHEMISTRY.

1. LECTURES (five in number). TOPICS: Methods of teaching chemical science. The history of the development of the modern methods. Fit adjustment of theoretical and experimental teaching and the value of each as modes of mental discipline. How far Chemistry can profitably be taught in the secondary and primary schools. Best means of securing enduring results. The best and most economical ways of installing and of furnishing a school laboratory, and the precautions required to ensure profitable and safe work from immature students. Suggestions on the preparation and delivery of experimental lectures. The best system of teaching the three main branches of Elementary Chemistry: viz., General Descriptive Chemistry, Mineralogy, or the natural history aspect of Chemistry, and Qualitative Chemical Analysis.

2. ADDITIONAL EXERCISES: In order to gain a competent knowledge of class-room and laboratory methods of teaching Chemistry, the student will find it essential to take such of the following courses as he has not already studied: Chemistry *A*, *B*, *C*, 1, and 3 (see, as before, the General Announcement of the Courses of Instruction provided by the Faculty for 1891–92).

The course will be under the general direction of Professor COOKE.

XI. BOTANY.

1. LECTURES (ten in number). TOPICS: Methods of teaching Vegetable Morphology, Physiology, and Economic Botany.

2. ADDITIONAL EXERCISES: Students will be required to attend certain specified exercises in Elementary and Advanced Botany, and to assist in laboratory supervision.

The course will be under the general direction of Professor GOODALE.

XII. ZOÖLOGY.

1. LECTURES (three in number). TOPICS: Methods of teaching Zoölogy. Modern methods of work in Zoölogy. The equipment and management of a school laboratory.

2. ADDITIONAL EXERCISES: Students who wish to receive a certificate will be required to attend Zoölogy 1 and 2 (see the General Announcement of the Courses of Instruction provided by the Faculty for 1891–92), and to pass the examinations and do the regular work in the same.

The course will be under the general direction of Professor MARK.

XIII. GEOLOGY.

1. LECTURES: Attendance on the now existing course known as Geology 4*a* is required; also on certain designated lectures in Geology 4.

2. ADDITIONAL EXERCISES: One conference each month, especially devoted to matters connected with the Instruction for Teachers.

3. Course 8 and Course *B* of the Summer School are recommended.

The course will be under the general direction of Professor SHALER.

XIV. GEOGRAPHY.

1. LECTURES (five in number): On methods in Descriptive and Physical Geography.

2. Students will be expected to perform PRACTICAL EXERCISES on the line of these lectures, preparing abstracts from reading, constructing diagrams and models, etc.

3. ADDITIONAL EXERCISES: For those who have had but brief study of Physical Geology the elementary courses Geology 1 and 2 will be required; and all who propose to teach in this subject will be advised to take Geology 20 or 21.

The course will be under the general direction of Professor DAVIS.

COLLEGES OTHER THAN HARVARD REPRESENTED IN THE LAW SCHOOL.

The following table exhibits the whole number of students, graduates of colleges other than Harvard, who became members of the School between 1870–71 and 1891–92, both inclusive, classified according to the colleges at which they graduated: —

	1870–71.	1871–72.	1872–73.	1873–74.	1874–75.	1875–76.	1876–77.	1877–78.	1878–79.	1879–80.	1880–81.	1881–82.	1882–83.	1883–84.	1884–85.	1885–86.	1886–87.	1887–88.	1888–89.	1889–90.	1890–91.	1891–92.	Total.
Acadia College	.	.	.	2	1	.	.	.	.	.	.	1	1	.	.	.	.	.	.	.	.	.	5
Adelbert College	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	1	.	1	3
University of Alabama	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	1
Allegheny College	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	1	.	2
Amherst College	.	.	1	.	.	1	1	3	3	3	1	.	1	1	1	.	4	5	3	.	5	.	33
Antioch College	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	1
Baden Gymnasium	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	1
Bates College	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	2
Beloit College	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	1
Bishop	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	1
Boston College	.	.	.	.	.	.	.	.	1	1	.	1	.	.	1	.	.	.	.	.	.	.	4
Bowdoin College	1	1	1	.	.	3	.	1	2	3	1	1	.	2	1	.	1	1	.	.	.	8	27
Brown University	1	6	3	1	.	1	2	1	1	.	2	.	1	.	2	.	2	5	1	2	5	7	43
Buchtel College	.	.	.	.	.	2	.	.	.	.	4	.	.	.	.	.	.	.	.	.	.	.	6
University of California	.	.	.	1	.	.	1	.	.	.	.	.	.	.	.	.	.	1	.	1	.	1	5
Central College	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	1
Central University	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	1	.	.	2
Centre College	.	.	.	.	.	1	.	.	1	.	.	.	1	.	1	.	.	.	.	.	.	.	4
University of Chicago	.	1	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2

Christian Brothers' College	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Christian University	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
University of Cincinnati	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	1	.	.		2
Colby University	1	.	.	.	.	.	1	.	1	1	.	.	1	.	1	.	1	.	1	1	1	.		10
University of Colorado	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.		1
Columbia College	.	.	.	1	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	1	2			5
University of Copenhagen	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		1
Cornell College	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.		2
Cornell University	.	1	.	.	1	1	.	.	.	.	.	.	1	1	.	1	.	.	.	2	1			9
Dalhousie College	.	.	.	.	.	.	1	.	.	.	.	1	.	.	.	.	.	.	1	.	.			3
Dartmouth College	4	.	.	3	.	1	.	1	3	.	1	2	.	1	.	.	2	.	1	1	2	1		23
Delaware College	.	.	.	.	.	.	.	1	1	.	.	.	.	.	.	.	.	.	.	1	.	.		3
De Pauw University	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.		1
Dickinson College	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.		1
Drake University	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.		1
Earlham College	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		1
University of Edinburgh	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.		1
Emory College	.	1	2	.	1	1	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.		6
Emory and Henry College	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		1
Eureka College	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.		1
Fisk University	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.		1
University of France	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1			1
Franklin and Marshall	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1			1
Georgetown College (D. C.)		1	.	.	.	.	.	.	.	.	.	1	.	.	1	.	.	.	2	.	1			6
Georgetown Coll. (Ky.)	.	.	1	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.			2
University of Georgia	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.			1
Griswold College	2	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.			3
Hamilton College	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.			1

	1870–71.	1871–72.	1872–73.	1873–74.	1874–75.	1875–76.	1876–77.	1877–78.	1878–79.	1879–80.	1880–81.	1881–82.	1882–83.	1883–84.	1884–85.	1885–86.	1886–87.	1887–88.	1888–89.	1889–90.	1890–91.	1891–92.	Total.
Hanover College	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	2	.	.	.	4
Haverford College	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Hobart College	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	3
Howard University	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	1
Illinois College	.	.	.	.	.	.	.	1	1	.	.	.	.	.	.	.	.	.	.	.	.	.	2
University of Illinois	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	1	2
Indiana Asbury University	.	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3
Iowa Wesleyan University	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	1
Jesus College (Cambridge, England)	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	1
Johns Hopkins University	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	1	2
Kansas Normal College	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	1
Kentucky Military Institute	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	1	.	.	.	2
Kentucky University	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	2
Kenyon College	2	.	1	1	1	.	.	2	.	.	.	.	.	.	.	.	.	.	1	.	.	.	8
Kings College (N. S.)	.	.	.	.	1	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	2
Knox College	.	.	.	1	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	2
Lafayette College	.	.	1	.	1	.	1	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	4
Lehigh University	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
University of Leipzig	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
University at Lewisburg	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Lincoln University (Ill.)	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Lincoln University (Pa.)	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
University of Louisville	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	2
Macalester College	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	1
McKendree College	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1

Marietta University	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	1
Maryland Agricultural College	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	1
Massachusetts Agricultural College	.	.	.	.	.	.	.	.	.	1	.	.	1	.	.	.	.	1	.	.	.	.	.	3
Massachusetts Institute of Technology	.	.		.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	1	.	2
Mercer University	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	1
Miami University	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
University of Michigan	.	.	1	1	.	.	2	1	.	.	.	1	.	3	1	1	1	.	1	.	2	.	.	15
Middlebury College	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
University of Minnesota	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	2	.	3
Agricultural and Mechan. College of Mississippi	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	1
University of Mississippi	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	1
Monmouth College	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Mt. Alison College	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	1
Mt. St. Mary's College	.	.	.	1	.	1	1	.	.	.	.	.	.	.	.	1	2	.	.	1	1	.	.	8
Mt. Union College	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
National Normal University	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	1	.	2
University of Nebraska	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	1
University of New Brunswick	2	.	1	.	.	2	.	.	.	.	2	.	.	.	.	.	.	2	.	3	1	2	.	15
College of City of New York	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.		.	.	.	.	1
Northwestern Christian University	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Notre Dame University (Ind.)	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	1	.	.	1	.	1	1	.	5
Oberlin College	.	.	.	.	.	.	.	1	2	1	.	.	1	.	1	8	2	2	.	.	.	2	.	15
Oglethorpe University	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Ohio Wesleyan University	1	1	.	1	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4
Olivet College	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	1
University of the Pacific	.	1	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	2
Pacific Methodist College	.	.	.	.	.	.	1	.	1	.	.	.	.	.	.	.	.	.	.	1	.	.	.	3
Pennsylvania Central High School	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	1

	1870-71.	1871-72.	1872-73.	1873-74.	1874-75.	1875-76.	1876-77.	1877-78.	1878-79.	1879-80.	1880-81.	1881-82.	1882-83.	1883-84.	1884-85.	1885-86.	1886-87.	1887-88.	1888-89.	1889-90.	1890-91.	1891-92.	Total.
Pennsylvania College	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	1	.	2
Pennsylvania Military Academy	.	.	.	2	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	1	.	4
University of Pennsylvania	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	1
Princeton College	2	3	1	.	.	2	2	2	.	.	.	.	.	.	.	1	.	.	1	1	3	1	19
Racine College	.	.	.	1	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	1	1	6
University of Rochester	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	1
Rutgers College	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
College of the Sacred Heart	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	1	.	1
St. John's College (Cambridge, Eng.)	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
St. John's College (Md.)	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
St. John's College (Fordham, N. Y.)	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	1	2
St. Lawrence University	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	1
St. Louis University	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
St. Xavier College (O.)	.	.	.	.	.	.	.	.	.	.	2	.	.	.	.	.	.	.	.	.	.	.	3
Santa Clara College	1	.	.	.	.	.	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3
Sheffield Scientific School	.	.	.	.	.	.	.	.	.	1	.	1	.	.	.	.	.	.	.	.	.	.	2
Spring Hill College	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	1
Swarthmore	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Toronto University	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	1
Trinity College	1	.	.	.	.	.	.	.	.	.	1	1	1	1	.	.	1	1	.	.	2	1	10
Tufts College	1	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	1	3	.	.	.	8
Union College	1	1	.	.	.	.	.	.	1	.	.	.	.	1	1	.	1	.	.	.	.	.	6
U. S. Military Academy	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	1
U. S. Naval Academy	.	.	1	.	.	.	.	.	.	.	.	1	1	.	.	.	.	.	.	.	.	.	4
University of Vermont	.	.	.	1	.	.	.	.	.	2	1	.	.	.	.	.	.	.	.	.	.	.	4

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PRICE-LIST OF THE FOXCROFT CLUB.

Hours for meals: Breakfast, 7.30–8.50; Lunch, 12.30–1.30; Dinner, 5.30–6.30.
Sunday: Breakfast, 8–9.30; Lunch, 12.30–1.30; Dinner, 5.30–6.30.

Tea	3 cts.	White bread (2 slices)	1 ct.
Coffee	3 "	Graham bread (2 slices)	1 "
Cocoa	3 "	Corn bread (1 piece)	1 "
		Rolls (each)	1 "
Glass of milk	2 "	Graham gems (each)	1 "
Bowl of milk	4 "	Crackers (plate)	3 cts.
Cheese	1 "		
Butter	2 "	Dry toast (2 slices)	2 "
		Buttered toast (2 slices)	3 "
PIES.			
Mince	4 "		
Apple	4 "	Ginger-bread (1 piece)	1 "
Fruit	4 "	Cookies (2)	1 "

BREAKFAST AND LUNCH.

Oatmeal and milk	4 cts.	Baked beans	4 cts.
Wheat and milk	4 "	Eggs (2) boiled	8 "
Hominy and milk	4 "	" (2) dropped	8 "
Rice and milk	4 "	" (2) on toast	10 "
Cold meats	10 "	Egg omelette	10 "
Fish balls	5 "	Soup for lunch	4 "
Hot potatoes	2 "		

DINNER.

Soup	4 cts.	Stew	9 cts.
Fish	10 "	Potatoes	2 "
Roast beef	10 "	Vegetables	3 "
Roast mutton	10 "	Pudding	4 "

Other dishes will be added at the discretion of the Steward.

ADDITIONAL DISHES ON DEC. 10. (RANDOM SAMPLE.)

Oranges	2 cts.	Cream cakes	4 cts.
Bananas	2 "	Baked Indian pudding	4 "
Apples	1 "		
		Roast sirloin beef, dish gravy	10 "
		Roast leg of lamb, brown sauce	10 "
Cranberry sauce	4 "	Boiled or mashed potatoes	2 "
Apple jelly	4 "	Lima beans	3 "
Chocolate éclairs	4 "	Sweet potatoes	2 "

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TREASURER'S STATEMENT.

1891.

TREASURER'S STATEMENT.

To the Board of Overseers of Harvard College: —

The Treasurer of the College submits the Annual Statement of the financial affairs of the University, for the year ending July 31, 1891, in the usual form. Important changes in the accounts were made as of July 31, 1891, which are fully explained by entries on the records of meetings of the Corporation, as follows: —

At the meeting of October 26, 1891, it was

"*Voted*, that the sum of $23,341.97 being the net gain from sales of bonds at a profit, heretofore credited to the account of Railroad Bond Premiums, be transferred as of July 31, 1891, to a new account to be called 'Gains and Losses for General Investments,' which account shall be credited with all gains and charged with all losses hereafter arising from sales of property belonging to the general investments. As this account belongs pro rata to all the Funds sharing in general investments it is not to be allowed interest when its balance is on the credit side nor to be charged with interest when its balance is on the debit side."

"The Treasurer made the following statement in relation to the account called 'Unimproved Lands in Cambridge': —

"This account was opened during the year 1866–67, when the Corporation abandoned the old method of guaranteeing five per cent income to each Fund sharing in the general investments and treating all surplus income as available for general uses. In the year 1869–70 the Corporation adopted the present method of dividing pro rata the whole income from general investments and of providing for the general expenses of the University out of unrestricted Funds only, but the cost of unproductive land in Cambridge bought for University purposes was still charged to 'Unimproved Lands' up to September 1, 1872, when the sum of $106,887.49 stood to the debit of that account. The records do not show how the Corporation then expected to deal with this account, but the use of the words 'temporarily unimproved' and the fact that a subscription was started to pay for some of the land suggest that it was not the intention of the Corporation to provide lands for unproductive uses at the cost of the general investments. All lands

bought since 1872 have been provided for at the cost of unrestricted Funds only, but in consideration of the benefits which all the generally invested Funds received from sharing in the Webb estate and other old unrestricted property, it was deemed by the Corporation in 1880 to be fair that the account of Unimproved Lands should be credited with net gains from sales of securities at a profit. Up to July 31, 1891, such credits have reduced the account from $106,887.49 to $4751.13. It was thereupon

"*Voted*, that the sum of $4751.13 standing to the debit of the account of Unimproved Lands in Cambridge be charged off as of July 31, 1891, to the account of Gains and Losses for General Investments."

At the meeting of November 9, 1891,

"The Treasurer made the following statement: —

"It appears from a careful examination of the College books of account that the balance of $353,585.06 to the debit of Houses and Lands in Cambridge on July 31, 1891, resulted from a long series of debits and credits relating to such property beginning in 1790 and continued without a break for more than a hundred years. It also appears that from the beginning up to the year 1866–67 no restricted Fund was considered to have any interest in such property, except as security for the payment of income at a fair rate fixed from time to time, which rate was five per cent from the year 1825–26 until 1865–66 inclusive, having been reduced from six per cent in 1826. Up to 1866–67, all the Cambridge real estate had always been managed by the Corporation for the general good of the University, either as income yielding property or for the other needs of the University. In 1866–67 the former fixed rate of five per cent being much below the current rate of income from good securities, the Corporation adopted the principle of allowing each Fund not specially invested a pro rata interest in the income from general investments. No change, however, was then made by the Corporation in its manner of dealing with the Houses and Lands in Cambridge for the general good of the University, except to open a separate account with some of the unimproved lands. From that time the Corporation has been embarrassed in dealing with Cambridge property, and during the past fifteen years it has refused to invest in such property any more money, except money in which the restricted Funds had no interest. While it is a fact that on the average during the past seventeen years the Cambridge property, including all unimproved land, has yielded income on its cost to the general investments at a fair rate, not much less than

the average rate from the other general investments, and while it is now yielding more than such average rate, there is yet no doubt that it has always been and must be a wasting security, because the general needs of the University are steadily absorbing its land for unproductive uses, or at least for uses from which the restricted Funds cannot be allowed income. To the University as a whole it may indeed become highly productive property, if the friends of the College shall continue to build dormitories upon it and give them to the College; but it ought to be held only for the account of such University Funds as are wholly unrestricted, as to both principal and income, so that the Corporation may be free to deal with it for the best interests of the University. Under the circumstances as above stated, and in view also of the facts stated at the last meeting of the Corporation with reference to the account of Unimproved Lands, it seems fair that all the Cambridge real estate which was included in the accounts of Unimproved Lands and of Houses and Lands on July 31, 1891, should be transferred from the general investments to a special investment for unrestricted University Funds at the valuation of $353,585.06 at which it is now charged on the books. It was thereupon

"*Voted*, that all the real estate which on July 31, 1891, represented the investment account called Houses and Lands in Cambridge, together with all the real estate heretofore charged to the account called Unimproved Lands in Cambridge, be transferred as of July 31, 1891, from general investments, to a special investment, at a total valuation of $353,585.06, and that the account of such special investment be called "University Houses and Lands."

"*Voted*, that as of July 31, 1891, the following University Funds which are wholly unrestricted, namely, the George B. Dorr Fund, the Francis E. Parker Fund, the John C. Gray Fund, the Insurance and Guaranty Fund and so much of the Stock Account as may be needed, be withdrawn from the general investments, and be assigned to the special investment in University Houses and Lands. In case the account of University Houses and Lands shall be hereafter increased by additional investments of like nature, other unrestricted University Funds may be hereafter assigned to share the account with the above, pro rata to their respective contributions.

"*Voted*, that whenever the net income in any year from the University Houses and Lands shall exceed what would be needed to pay the same rate of income to its special Funds as shall be paid in such year to the Funds generally invested, such excess of income shall be credited to the account of University Houses and Lands as a repayment to capital from a wasting security.

"*Voted*, that the sum of $16,873, being the cost of the Royal Morse estate to the Stock Account in 1881, be charged to the account of University Houses and Lands and credited to the Stock Account as of July 31, 1891.

"*Voted*, that the sum of $16,500, being the cost of the Pomeroy estate to the Insurance and Guaranty Fund in 1886, be charged to the account of University Houses and Lands and credited to the Insurance and Guaranty Fund as of July 31, 1891.

"*Voted*, that the sum of $39,999.83, which represents so much of the cost of the Lawrence lot, the Foxcroft House, and the Rindge marsh as has not been paid from unrestricted income, be charged to the account of University Houses and Lands and credited to the account of Advances for University Lands, as of July 31, 1891."

At the meeting of November 30, 1891,

"The Treasurer made the following statement: —

"From a careful examination made by the Treasurer and the Deputy Treasurer of the old account books and records relating to the College property it appears clearly that no credit has ever been given on the College books for the capital value of the unrestricted bequest of land and buildings made by Joseph Lee, who graduated from the College in the year 1729, and died in the year 1802. The buildings have disappeared; but the land bequeathed by him is now productive property, being included with other land in the College House estate, although never charged to that investment, and its present value is about $10,000. It also appears that the Wiswall estate now included with other land in the College House estate, although not charged to that investment, was bought by the College in 1772, and that the Appleton Orchard (or Pasture) was bought in 1786. Both these estates, except so much of the Appleton Orchard as is included in the Memorial Hall Delta, are unrestricted property having no valuation on the College books. The other unrestricted lands in Cambridge which have no valuation on the College books were all bought by or given to the College before the year 1698. They consist of the lots in the College Yard called the Town Grant, Fellows Orchard, Betts, Sweetman, Goffe, and Eaton lots, and of the Robert Bradish lot on the corner of Harvard and Holyoke Streets, now absorbed by the Holyoke House estate but never charged as a part of the cost of that investment. The Bradish lot, and probably almost all the older lots belonging to the College, have lost part of their original land by contribution towards public streets. In order to do justice to the memory of Joseph Lee, and that all the unrestricted Cambridge land might be brought into one account, it was

"*Voted*, that, as of July 31, 1891, the account of University Houses and Lands be charged with the sum of $10,000 for the present value of the Joseph Lee land taken for College House, and that said sum be credited to the Joseph Lee Fund as an unrestricted University Fund sharing in the special investment of University Houses and Lands.

"*Voted*, that, as of July 31, 1891, the sum of $1000 be credited to the Stock Account and charged to University Houses and Lands for the Wiswall estate, the Appleton Orchard, except so much thereof as forms part of the Memorial Hall Delta, and all the lands in Cambridge now owned by the College which belonged to it before the year 1698. No buildings are transferred by this vote, and on these lands the only buildings belonging to University Houses and Lands are College House, Grays Hall, and Holyoke House, which were built at the cost of the Houses and Lands account. This transfer is made at a nominal consideration in view of the absorption by the University for unproductive uses of these lands and of other lands belonging to the account of University Houses and Lands."

"The Treasurer reported in relation to the dwelling house at the Observatory, and read a letter from Professor Pickering, — it was thereupon

"*Voted*, that at the request of Professor Pickering the building (without any land) occupied by him and known as the 'Observatory House' be transferred from the account of University Houses and Lands to the Observatory as of July 31, 1891, at its original valuation of $5000; and that in part payment therefor the land (and buildings) on the corner of Madison Street and Concord Avenue, bought by the Observatory in 1886, be transferred as unrestricted land to the account of University Houses and Lands at its cost of $2800. The money needed to complete this settlement is to be advanced to the Observatory to be repaid (with interest at five per cent) in instalments of not less than $600 a year."

The effect of the above votes is to include in the account called University Houses and Lands the Willard and Rindge marshes in the Brighton district, as well as all the Cambridge land belonging to the University or to any of its departments, except the following restricted parcels: —

1. All the land deeded to the President and Fellows in 1876 by the Trustees of the Museum of Comparative Zoölogy, on which are the University Museum and Peabody Museum.

2. The Memorial Hall Delta, on which are the Memorial Hall and Sanders Theatre.

3. The Botanic Garden estate, on which are the Herbarium, the Botanic Laboratory and Lecture-Room, the Professor's house, the janitor's house, greenhouses and outbuildings.

4. The real estate on Sacramento Street held for the Walter Hastings Fund, on which are two blocks of dwelling houses.

The buildings which belong to the account called University Houses and Lands are: —

Holyoke House; College House; Grays Hall; Foxcroft House; two boat-houses; Club House in Jarvis Street; house forming the east wing of the Scientific School building; three buildings on the College wharf; houses in Quincy Street occupied by Dr. Peabody, Professor Shaler, and Professor Langdell; houses in Frisbie Place occupied by Professor Ames and C. W. Sever, and a double house occupied by J. H. Arnold and N. H. Henchman; house in Oxford Street occupied by W. C. Lane; houses in Madison Street occupied by the Observatory (2 houses used for scientific purposes), F. Carney and C. A. Legg; and in Church Street a paint-shop and a house occupied by a College watchman.

The buildings which do not belong to the account called University Houses and Lands but are on lands held for that account are: —

Massachusetts; Harvard; Hollis; Holden Chapel; Stoughton; Holworthy; Thayer; University; Weld; Wadsworth House; Dane; Matthews; Boylston; University Library; Appleton Chapel; Sever; President's house; the old Gymnasium; the Scientific School building; Hemenway Gymnasium; Austin Hall; Jefferson Physical Laboratory and engine-house; Walter Hastings Hall; Carey Athletic Building; Hospital; President's stable; Divinity Hall; Divinity Library; house in the rear of Divinity Hall; Observatory and its Director's house connected therewith; six small Observatory buildings; Observatory Photographic Laboratory. Also buildings not belonging to the University as follows: the armory building; a small work-shop; a boat-house;

West End Railway repair shops; coal and wood sheds on the College wharf.

Beside the Cambridge real estate not included in University Houses and Lands, as above stated, the following real estate in Boston and Hyde Park belonging to the University has now no valuation on its books of account: —

The Soldier's Field, given by Henry L. Higginson in 1890.

The Longfellow marsh, given by Henry W. Longfellow and others in 1870.

The Owen marsh, bequeathed by John Owen in 1882.

The Medical School land and buildings in and about North Grove Street.

The Medical School land and buildings in Boylston Street.

The Veterinary School land and building in Lucas Street.

The Bussey "Woodland Hill" estates, formerly in Roxbury and Dorchester.

The reversion in 1896 of the Stoughton pasture in the Dorchester district.

The recent investigations made by Mr. Danforth, the Deputy Treasurer, as to the lands in Cambridge which have long been owned by the College have brought to light the fact that nearly all the land under Holyoke House was owned by the College as early as 1654. This lot has for more than sixty years been considered as part of the Bordman land bought in 1794, and taxes have been paid upon it for many years past, but it is now clear that it is part of the real estate forever exempt from taxation or betterments by the College Charter and the Constitution of Massachusetts, as it appears under the name of "the houselott of Rob^{t} Broadish" in "An Inventory of the whole estate of Harv^{d} Colledge taken by the President & ffellows as they find the same to be Decemb. 10. 1654 at which time the Accounts thereof were given by M^{r}. Henry Dunster late President of the s^{d} Colledge." It is also clear that a small tax which has for several years been paid on part of the Wadsworth House should not have been paid. It is still a matter of doubt as to how much, if any, of the Cambridge land acquired by the College in the later years of the last century and the earlier years of the present century was acquired before the limit of

£500 annual value, fixed by the Charter for tax exemption, had been reached, but the question has now been referred by the Corporation to a committee for examination.

During the year a careful investigation has also been made as to the sales of Cambridge land by the College within this century, and it clearly appears that on the whole the sales have been greatly to the advantage of the College, as the increase in value of such land has rarely been equal to the accumulated interest on the purchase money, and no net income could have been got from temporary improvements. The policy of buying or holding unproductive land only when there is a pressing need for it seems to be on the whole a good policy for the College.

The Funds separately invested, with the income thereof, are as follows: —

UNIVERSITY.	Principal. July 31, 1891.	Income.
George B. Dorr Fund,		
University Houses and Lands,	$115,966.56	
Francis E. Parker Fund,		
University Houses and Lands,	113,817.44	
John C. Gray Fund,		
University Houses and Lands,	25,000.00	
Insurance and Guaranty Fund,		
University Houses and Lands,	141,638.74	
Joseph Lee Fund,		
University Houses and Lands,	10,000.00	
Stock Account (part of),		
University Houses and Lands,	29,335.15	
John Cowdin Fund,		
Real Estate in Boston,	22,000.00	$1,694.14
Walter Hastings Fund (part of),		
Real Estate in Cambridge,	20,000.00	
COLLEGE.		
Stoughton Scholarship (part of),		
Real Estate in Dorchester,	1,294.30	
Pennoyer Scholarships (part of),		
Pennoyer Annuity in England,	4,444.44	171.00
Jonathan Phillips, Gift,		
Mortgages,	10,000.00	500.00
Daniel H. Peirce Fund,		
Mortgage,	13,353.03	664.33
Samuel Ward's Gift,		
Ward's (Bumkin) Island, Boston Harbor,	1,200.00	50.00
Amounts carried forward,	$508,049.66	$3,079.47

Amounts brought forward, . . .	$508,049.66	$3,079.47
Scholarships of the Class of 1856,		
$10,000 Frem., Elkhorn & Mo. Valley R. R. 6's,	10,000.00	600.00
Charles Haven Goodwin Scholarship,		
Personal Note (paid during the year), ...		126.98
LIBRARY.		
Charles Minot Fund (part of),		
$60,000 Buffalo, Bradford, & Pittsb. R. R. 7's,	60,000.00	4,200.00
Ichabod Tucker Fund (part of),		
Policy of Mass. Hospital Life Insurance Co., . .	5,000.00	200.00
MUSEUM OF COMPARATIVE ZOÖLOGY.		
Agassiz Memorial Fund (part of),		
Advances for new building, &c., ...	24,113.79	1,315.20
OBSERVATORY.		
Uriah A. Boyden Fund (part of),		
35 shares East Boston Ferry Co., ...	1.00	
SPECIAL FUNDS.		
Bussey Trust,		
Real Estate, ...	413,092.80	21,970.01
Robert Troup Paine Fund (accumulating),		
$33,500 Massachusetts 5's, ...	38,095.00	1,610.82
Fund of the Class of 1834,		
Policy of Mass. Hospital Life Insurance Co., . .	1,000.00	40.00
Fund of the Class of 1853,		
Policies of Mass. Hospital Life Insurance Co., . .	3,625.00	121.00
George William Sawin Fund,		
12 shares Boston & Providence R. R., ...	3,063.00	70.00
Price Greenleaf Fund. The total amount of this Fund is $718,283.71, which is invested as follows: —		
$43,500 Consolidated R. R. of Vermont 5's, ...	38,280.00	2,175.00
12,200 Rutland R. R. 6's, ...	12,932.00	732.00
37,200 Rutland R. R. 5's, ...	34,968.00	1,860.00
1,000 Cheshire R. R. 6's, ...	1,110.00	60.00
46,500 Ogdens. & L. Champ. R. R. 6's, ...	46,500.00	2,790.00
23,800 Ogdens. & L. Champ. R. R. income 6's, . .	10,234.00	
3,000 Boston & Lowell R. R. 7's, ...	3,390.00	210.00
8,000 Michigan Air Line R.R. 8's (paid during yr.),		320.00
3,000 Chicago, Burl. & Quincy R. R. 4's, ...	2,880.00	120.00
4,000 Chicago, Burl. & Northern R. R. 5's, . . .	4,000.00	200.00
23,000 Union Pacific Railway 6's, ...	25,990.00	1,380.00
290 shares Northern R. R. (N. H.), ...	29,290.00	2,175.00
800 " Rutland " preferred, ...	28,000.00	2,400.00
40 " Ogdens. & L. Champ. R. R., ...	680.00	
317 " Boston & Maine "	48,746.21	3,011.50
360 " Boston & Lowell R. R., ...	46,800.00	2,520.00
237 " Fitchburg R. R. preferred, ...	22,541.33	817.50
Amounts carried forward, . .	$1,422,381.79	$54,104.48

Amounts brought forward, . .	$1,422,381.79	$54,104.48
355 shares Old Colony "	63,190.00	2,485.00
142 " Chicago, Burl. & Quincy R. R., . . .	19,141.60	639.00
20 " N.Y. Central & Hudson River " . . .	2,260.00	90.00
292 " Michigan Central " . . .	28,032.00	1,460.00
122 " Union Pacific Railway, ...	7,161.40	
52 " West End Street Railway, ...	4,330.00	208.00
$50,000 Metropolitan Tel. & Tel. Co. 1st M. 5's, . .	49,750.00	2,270.83
25,000 New England " " " 6's, ...	25,593.75	
25,000 Chic. Junc. R'y & Union Stock Yards 5's, .	23,500.00	312.45
200 shares N.Y., N. Haven & Hart. R.R., ...	45,225.00	500.00
100 " " " " " " " (on acct. of),	17,025.00	
Lawrence Manufacturing Co.'s Note, ...	30,000.00	1,350.00
Manchester Mills Note, ...	25,000.00	423.61
Lowell Manufacturing Co.'s Note (paid during yr.),		358.44
Amoskeag Manufact. Co.'s " " " "		1,650.00
United States Hotel Co.'s Notes, " " "		3,808.13
Mortgages . . . . . ($6,500 " " "),	5,000.00	646.50
Deposit with New England Trust Co., ...	16,733.42	305.88
Totals, ...	$1,784,323.96	$70,612.32

The other Funds are invested as a whole. The general investments are stated in detail on pages 28 and 29 of this report, but the usual summary statement of them, with the income thereof, is as follows: —

Investments.	Principal, August 1, 1890.	Principal, July 31, 1891.	Income.
Notes, Mortgages, &c., ...	$564,713.40	$1,004,646.97	$35,386.58
Railroad Bonds and Premiums, . .	2,578,663.92	2,415,113.31	118,543.69
Railroad Stock, ...	419,592.00	154,871.51	15,691.00
Union Stock Yard & Transit Co., . .	28,062.50		
Sundry Bonds, ...	100,750.00	299,170.00	8,408.85
Manufacturing Stock, ...	60,738.54	38,122.29	4,670.00
Real Estate, ...	1,671,090.56	1,312,610.63	104,943.56
Unimproved Lands, ...	41,568.38		
Brattle Street Reversion (1918), . .	1,000.00	1,000.00	
Advances to Botanical Dept.		6,905.57	241.78
" " Bussey Trust, ...	37,513.76	37,513.76	1,875.69
" " Dining Hall Association,	24,232.16	22,732.16	1,453.93
" " University Lands, . . .	69,248.18	30,000.00	3,495.21
" " Observatory, ...	200.47	3,676.31	10.02
" " Observatory, Real Estate,	1,197.68		59.88
" " Lawn Tennis Association,	250.00	250.00	27.00
" " School of Veterinary Medicine, ...	16,848.84	16,518.94	1,010.93
Baring Brothers & Company, . . .	744.83	947.83	27.00
Term Bills due in October, ...	105,764.16	118,501.59	
Term Bills overdue, ...	2,262.38	2,243.12	
Cash in Suffolk National Bank, .	42,672.69	32,435.52	
Cash in hands of Bursar, ...	7,196.03	18,131.57	
Check in Treasurer's Office, for deposit, ...		133.06	
Totals of general investments,	$5,774,310.48	$5,515,524.14	$295,845.12
Totals of special investments,	1,347,544.48	1,784,323.96	70,612.32
Amounts, . . .	$7,121,854.96	$7,299,848.10	$366,457.44

During the year the new gifts for capital account and the proceeds of sale of the preferred stock of the Boston & Maine railroad have been invested in corporation notes, with a view to permanent investment in productive real estate in Boston as soon as a purchase can be advantageously made. The high price offered for New York, New Haven & Hartford Railroad stock early in 1891 tempted the Corporation to sell out its whole investment in that railroad; but afterwards the issue of new stock caused a heavy fall in the market price and the Corporation again made a large investment in the old stock and the rights to new stock. The net gain over cost from sales of stocks during the year was $36,817.25, and it was used, as heretofore, to reduce the book valuation of unimproved lands in Cambridge. The account of Advances for Railroad Bond Premiums has been credited with the sum of $31,790.50 as the fair yearly repayment from income on account of premiums advanced.

The net income of the general investments ($295,845.12) has been divided at the rate of $5\frac{15}{100}$ per cent among the Funds to which they belong, after allowing to the Carey Building Fund, the Botanical Building Fund and part of the Bruce Fund a special rate of four per cent on their balances during the period of construction, and to certain other temporary Funds and balances a special rate of three per cent. The fraction, which was $370.47, has been placed as usual to the credit of the University account.

The rate of income compared with that for 1889–90 shows a gain of $\frac{21}{100}$ of one per cent. The low rate of the previous year was due in part to repairs and improvements upon productive real estate, and the higher rate of this year was partly owing to better rates of interest on corporation notes.

The following table shows the income available for the departments dependent upon the College proper, and the expenditures in those departments: —

Interest on Funds for	
University Salaries and Expenses, ...	$31,982.48
Library Salaries and Expenses (not books), . .	25,247.32
College Salaries and Expenses, ...	40,276,86
Gymnasium, and repairs on College buildings, .	none.
College Term Bills, ...	260,587.33
Amount carried forward, . . .	$358,093.99

Amount brought forward, . . .		$358,093.99	
Sundry receipts, as follows: —			
Gifts for Salaries and Expenses, . .	$1.750.70		
Rents, ...	1,629.81		
Laboratory and other fees, ...	22,332.13		
Sales of catalogues, pamphlets, etc.,	3,291.43		
		29,004.07	
			$387,098.06
Expended for			
University Salaries and Expenses, ...		$49,628.05	
Library Salaries and Expenses (not books), ...		27,999.54	
College Expenses, ...		89,998.54	
College Salaries, for instruction, ...		198,627.29	
Gymnasium and Athletic Building Expenses, ...		9,043.14	
Repairs on College buildings not valued on Treasurer's books, ...		12,516.18	
			387,812.74
Balance, showing deficit for the year, which has been charged to Stock Account, ...			$714.68

For the University, College, and Library accounts there has been a large increase of income, chiefly from more tuition fees, from Walter Hastings Hall, and from the higher rate of income on Funds. The expenditure, however, has been greater and has caused a deficit of $714.68. The income of the Stock Account has been added to its capital to make good in part former deficits, but the balance of the unrestricted Sever Fund has been used up to improve the ventilation of Sever Hall. For 1889–90 there was a surplus of $533.29.

The Divinity School has had a surplus of $1410.45, chiefly from a larger income and a gift of $1500 for immediate use. For 1889–90 there was a deficit of $1628.66.

For the Law School a larger outlay for instruction and for the library has been met chiefly by more tuition fees. The surplus for the year has been $11,635.88. For 1889–90 the surplus was $12,193.93.

The Medical School has made a larger outlay, but more tuition fees have left it a surplus of $5216.82. For 1889–90 the real deficit was $673.88.

The Dental School has had a surplus of $3698.14, due to more tuition fees. For 1889–90 the surplus was $2335.38.

For the Lawrence Scientific School there has been a larger income from tuition fees, but the expenses have been much

larger. The surplus for the year has been $2324.56. For 1889–90 the surplus was $4053.31.

The Museum of Comparative Zoölogy has spent all the income of its restricted Funds as required by the conditions of gift, and has used the surplus income of the Agassiz Memorial Fund as heretofore to pay interest upon, and to repay in part, the principal of the advances from the Memorial Fund, which were used to extend the Museum building and to buy fossils.

For the general account of the Observatory there has been a deficit of $518.28. For 1889–90 there was a deficit of $546.76. Large outlays have been made from the capital as well as the income of the Boyden Fund, for the expedition to Peru. Mr. Boyden's will permits the expenditure of capital; but it is understood that after the return of the expedition the income shall be for a time accumulated. During the year both receipts and payments for the Draper Memorial have been large.

The Bussey Institution has had a surplus of $2918.72 in spite of less income from the Bussey stores. For 1889–90 the surplus was $2473.14.

For the Veterinary School a surplus of $329.90, due to larger receipts from its Hospital and Forge, has been used to reduce its debt. For 1889–90 the surplus was $388.35.

Gifts have been received during the year as follows: —

GIFTS TO FORM NEW FUNDS OR INCREASE OLD ONES.

From William M. Prichard, $10,000, to found the Henry Warren Torrey Fund, the income to be applied from time to time to the publication of historical theses or monographs, to be selected from the recent writings of teachers or students in the Historical department.

From the estate of Mrs. Pastora E. Humphrey, her bequest of $10,000, to found the Henry B. Humphrey Fund, the income to be used for Scholarships.

Through Henry M. Spelman, subscriptions amounting to $3063, to found the George William Sawin Fund, the income to be paid to Mr. Sawin's mother during her life and after

her death to be used for a "George William Sawin instructorship or fellowship in Harvard University, the incumbent to be by preference a student of mathematics."

From the estate of William Brown Spooner, $10,000, the amount of his unrestricted bequest to the Divinity School.

From the estate of Miss Charlotte F. Blanchard, her unrestricted residuary bequest amounting to $4771.33.

Subscriptions towards a fund to be called The Joseph Lovering Fund for Physical Research, in recognition of Professor Lovering's life-long devotion to Physical Science, the income to be spent for the promotion of original research at the Jefferson Physical Laboratory, paid to August 1, 1891, from

Frederick L. Ames	$1,000	R. M. Hodges	$100
Amer. Bell Telephone Co. .	1,000	John E. Hudson	250
Francis Bartlett	500	E. D. Leavitt	250
Francis Blake	1,000	Samuel Longfellow	15
C. A. Brackett	5	Theodore Lyman	100
William Endicott, Jr. . . .	2,000	George Putnam	250
William H. Forbes	250	Henry M. Whitney	1,000
			$7,720

Additional subscriptions to raise the standard of Medical Education, paid to August 1, 1891, from

Frederick L. Ames	$1,000	E. V. R. Thayer	$500
T. O. H. P. Burnham . . .	500	John E. Thayer	500
William Endicott, Jr. . . .	1,000	Nathaniel Thayer	1,000
Augustus Hemenway . . .	500	Estate of Miss Anne Wigglesworth	500
H. H. Hunnewell	1,000		$6,500

From Virgil C. Pond, $50, and from an anonymous friend, $7000, to be added to the endowment of the Dental School.

From William S. Bullard, $15,000, for the establishment of three Fellowships of $5000 each in the Medical School, in memory of George Cheyne Shattuck, John Ware, and Charles Eliot Ware.

From Edward Russell, $200, to increase the Scholarship founded by him.

From Henry Villard, $5000, the last instalment of his subscription of $25,000 towards the Law School Book Fund.

From the estate of Henry T. Morgan, $6.81 additional, for the Henry T. Morgan Fund.

From Miss Anna C. Lowell, $1000 additional, for the Lowell Fund for a Botanic Garden.

From Roger Wolcott, $10,000, to found the J. Huntington Wolcott Fund, the income to be expended "in the purchase of books of permanent value for the University Library, the preference in selection to be given to works in the departments of History, Political Economy and Sociology"; and $10,000, to found the Huntington Frothingham Wolcott Fund, "the income to be expended by the Trustees of the Peabody Museum of American Archaeology and Ethnology, or their successors, for the promotion of archaeological and ethnological research and exploration, the purchase of objects illustrative thereof, or the publication of matter relating thereto."

The total amount of these gifts for capital account is $100,311.14, as is also stated on page 24 of this report.

GIFTS FOR IMMEDIATE USE.

From Mrs. Henry Draper of New York, an additional sum of $10,000, to be expended by the Director of the Observatory in prosecuting the researches in the photography of stellar spectra, with which the late Dr. Henry Draper's name is honorably associated.

From Robert Treat Paine, $200, for two prizes of $100 each "for the best essays by any students of the University on the ethical aspect of the modern social questions."

From Samuel Williston, $170, as a repayment with interest of scholarship money received by him while a student in the Law School.

From William G. Farlow, his annual gift of $450, towards the salary of the Assistant in the Cryptogamic Herbarium.

From Alfred T. White, $100, for the special library of books on Social Questions.

Through James S. Russell, nine anonymous gifts amounting to $1275, "to be used in equipping a library for the use of the Historical department."

From the estate of Walter Hastings, a final payment of $1532.10 for the erection of a dormitory on the grounds of Harvard College, to be called Walter Hastings Hall.

Subscriptions towards the construction of a fire-proof building for the storage of valuable manuscripts and photo-

graphic plates at the Observatory, paid to August 1, 1891, from

J. Randolph Coolidge	$100	Henry Lee	$500
A friend	500	E. C. Pickering	500
H. H. Hunnewell	200		
			$1,800

Subscriptions for cases and furniture for Professor Cooke's addition to the University Museum, paid to August 1, 1891, from

Edward Austin	$500	F. O. French	$100
Francis Bartlett	500	Mrs. G. L. Pratt	100
Miss Anna S. C. Blake	1,000	Miss Mary B. Pratt	100
Martin Brimmer	250	Nathaniel Thayer	250
Mrs. Elizabeth C. Hayden	1,000	W. A. Wadsworth	300
			$4,100

Subscriptions for a library for the Classical department, including $500 for fitting up its lecture-room in Harvard Hall, paid to August 1, 1891, from

E. H. Abbot	$100	F. W. Hunnewell	$100
C. F. Adams	500	D. P. Kimball	250
J. Q. Adams	100	Augustus Lowell	100
F. L. Ames	100	John Lowell	100
C. W. Amory	100	Arthur T. Lyman	100
John F. Andrew	100	G. C. Magoun	300
Francis Bartlett	500	Miss Ellen Mason	100
Thomas P. Beal	50	George H. Mifflin	100
George N. Black	100	Grenville H. Norcross	100
George Blagden	200	Gilbert R. Payson	100
S. Parkman Blake, Jr.	50	O. W. Peabody	100
E. I. Browne	50	Henry Pickering	50
Charles P. Curtis	100	Henry W. Pickering	100
George Dexter	100	William R. Robeson	100
W. S. Dexter	100	William G. Russell	100
W. Endicott, Jr.	250	Stephen Salisbury	200
O. B. Frothingham	100	J. O. Sargent	50
George A. Gardner	100	Thos. Wigglesworth	100
John L. Gardner	500	Robert C. Winthrop, Jr.	100
W. A. Gardner	500		$6400
Franklin Haven, Jr.	100	Accrued interest	43.34
Augustus Hemenway	100		$6443.34
J. J. Higginson	250		

Additional subscriptions from graduates of the Dental School, to be applied towards the immediate wants of the School, paid to August 1, 1891, from

Charles H. Abbot	$25	P. B. Laskey	$5
C. A. Brackett	25	Frank Perrin	10
Edwin P. Bradbury	25	William H. Potter	5
Thomas Fillebrown	20	James Shepherd	5
H. W. Gillett	5	Charles Wilson	10
			$135

Additional subscriptions for the present use of the Herbarium, paid to August 1, 1891, from

Frederick L. Ames	$500	Henry Lee	$500
B. P. Cheney	500	Augustus Lowell	250
A friend	500	Nathaniel C. Nash	250
George W. Hammond	100	F. H. Peabody	50
H. H. Hunnewell	500	Fiske Warren	100
Nathaniel T. Kidder	500		$3,750

Subscriptions for fitting up a psychological laboratory, purchasing apparatus, books, etc. for the department of Psychology, paid to August 1, 1891, from

Martin Brimmer	$100	Wm. Powell Mason	$100
G. M. Carnochan	100	James Parrish	50
Miss Harriet Lathrop Dunham	50	William A. Slater	3,000
A friend	500	S. D. Warren	100
Charles C. Jackson	100	Mrs. Henry Whitman	100
Theodore Lyman	100		$4,300

From Miss Lucy Ellis, an additional gift of $1000, for the Physiological department of the Medical School.

From Adolphe Cohn, $18, for the purchase of books for the French department.

From the Dante Society, the additional sum of $50, and from R. R. Whitehead of Florence, Italy, through the Dante Society, $24.25, for the purchase of books on Dante.

From John Simpkins, $50, towards equipping a library for the use of the Historical department.

From John O. Sargent, $100 additional, for the Sargent prize for 1890–91.

From John T. Morse, Jr., $150, for apparatus to illustrate Assistant Professor Channing's lectures in History 1.

From W. S. Bigelow, $70, for special use at the Medical School.

From Andrew P. Peabody, $200 additional, for prizes to be given to students in the Semitic languages for the academic year 1891–92.

From an anonymous friend, his annual gift of $500, to increase the salary of the Professor of Entomology.

From John Lowell, on behalf of himself and Mrs. Lowell, $400, the sixth yearly payment for the support of two Scholarships to be known as the George Emerson Lowell Scholarships.

From Mrs. C. M. Barnard, $600, her eighth yearly payment for the Warren H. Cudworth Scholarships.

From Henry C. Warren, $750 additional, "to be applied at the discretion of Professor C. R. Lanman, to the printing and publishing of Hindoo texts and of translations from the same, and to the purchase of Hindoo manuscripts," for the Sanskrit department.

From Jacob H. Schiff, $1000, for the purchase of books for a reference library for the Semitic department.

From Charles Fairchild, $2500, for the present use of the Geological department.

From Henry L. Higginson, $8877.53, to pay for grading and other expenses relating to The Soldier's Field.

From the Class of 1879, an additional gift of $105, to be used under the direction of Assistant Professor Taussig for the Political Economy reading-room.

Through Louis D. Brandeis, the second annual gift of $1000, from an anonymous friend of the Law School, to defray the expenses of the course in the Peculiarities of Massachusetts Law and Practice for the year 1891–92.

From William Meyer Lewin, $142, in recognition of benefits conferred upon him while a student at Cambridge.

From an anonymous friend, $100, to be added to the Fund of Scholarships and Beneficiary Money returned.

From George W. Wales, $200, for books for the Library, in continuance of former gifts for the same purpose.

From the Society for Promoting Theological Education, $1500, for the Divinity School, toward the expense of preparing the new catalogue.

Through E. C. Beckett, $10, a gift of grateful children, for the Veterinary Hospital.

From Mrs. Benjamin S. Rotch, $10,000, "to build and equip an electrical engineering workshop which shall be annexed to the Lawrence Scientific School."

From Henry R. A. Carey, $800.70, to pay most of the expenses of the Carey Athletic Building for 1890–91.

From Nathaniel C. Nash, $500, to be spent by Professor John Williams White in such manner as he shall think will best advance the interests of the Greek department.

From William W. Goodwin, $25.83, to be added to the income of the Charles Haven Goodwin Scholarship Fund for 1890–91.

The total amount of these gifts for immediate use is $64,928.75, as is also stated on page 22 of this report.

OTHER GIFTS ACKNOWLEDGED BY THE CORPORATION.

By the bequest of Mrs. Anna L. Möring, eleven hundred and eighty-two volumes, a collection of pamphlets, a marble bust of Cicero and a marble bust of Dr. L. de Wette, with pedestals.

From William Everett, a statue of Edward Everett by Hiram Powers.

From Samuel H. Russell, a set of reproductions of three water color views of Boston, taken in 1764, with a report of the Bostonian Society relating thereto, for the College Library.

From an unknown giver, a new piano for the department of Music.

By the bequest of J. B. Gross of Wilksbarre, Pa., a manuscript of miscellaneous papers.

From Winslow Warren Sever, two portraits, one of Nicholas Sever, Tutor and Fellow, who was born in 1680 and died in 1764, and one of Sarah Warren, his wife, who was born in 1692 and died in 1756.

From Mrs. Henry W. Foote, five hundred and twenty volumes and seventy-three pamphlets selected from the library of the late Henry W. Foote, for the library of the Divinity School.

By the bequest of George Bancroft, his portrait, painted by Gustavus Richter.

From Mrs. Francis Bowen, a portrait of the late Professor Bowen, painted by E. T. Billings.

From George von L. Meyer, the new gate-way at the Cambridge St. entrance to the College Yard.

From Arthur Lithgow Devens and his sisters, a portrait of the late General Charles Devens, painted by Frederic P. Vinton.

EDWARD W. HOOPER, *Treasurer.*

Boston, December 15, 1891.

General Statement of Receipts and Disbursements for the year ending

INCOME.

Interest on notes, mortgages, and advances,		$54,431.21
" " Massachusetts 5's,		1,610.82
" " Policies Mass. Hospital Life Insurance Co.,		361.00
" " Deposit with New England Trust Co.,		318.59
" " Metropolitan Telephone & Telegraph Co. 5's,		7,270.83
" " Chicago Junc. Railways & Union Stock Yards Co. 5's,		3,721.30
" " Railroad Bonds (after deductions for sinking premiums).		
Buffalo, Bradford & Pittsburg 7's,	4,200.00	
Burlington & Mo. River in Neb. 6's,	17,925.68	
Atchison & Nebraska 7's,	9,321.00	
Kan. City, St. Jos. & Council Bluffs 7's,	8,157.00	
Fort Scott, So. E. & Memphis 7's,	7,103.00	
Kansas City & Cameron 10's,	9,904.37	
Lincoln & No. Western 7's,	1,750.00	
Eastern Railroad sterling 6's,	4,278.72	
Fremont, Elkhorn & Mo. Valley 6's,	600.00	
Chicago, Burlington & Quincy 4's,	120.00	
Eastern Railroad 6's,	18,888.00	
Consolidated R. R. of Vermont 5's,	2,175.00	
Rutland Railroad 6's.	732.00	
Rutland Railroad 5's,	1,860.00	
Cheshire Railroad 6's,	60.00	
Michigan Air Line 8's,	320.00	
Union Pacific 6's,	1,380.00	
Chicago, Burlington & Quincy 5's,	3,000.00	
Ogdens. & Lake Champlain 6's	2,790.00	
Boston & Lowell 7's,	210.00	
Chicago, Burlington & Northern 5's,	200.00	
Chicago, Burlington & Quincy 7's,	32,787.00	
Union Pacific R'y Omaha Bridge 5's,	8,377.92	
Chicago, Burlington & Quincy conv. 5's,	2,101.00	133,190.69
Dividends on Stocks.		
Amoskeag Manufacturing Co.,	$1,200.00	
Merrimack " "	850.00	
Nashua " "	620.00	
Pacific Mills,	2,000.00	4,670.00
Chicago, Burlington & Quincy R. R.,	639.00	
Rutland R. R., preferred,	2,400.00	
Boston & Maine R. R.,	14,327.50	
Old Colony R. R.,	2,485.00	
New York Cent. & Hud. River R. R.,	90.00	
Michigan Central R. R.,	1,460.00	
Boston & Lowell R. R.,	2,520.00	
Northern R. R. (N. H.),	2,175.00	
West End Street Railway Co.,	208.00	
Amounts carried forward,	$26,304.50	$205,574.44

by the Treasurer of Harvard College,
July 31, 1891.

EXPENSES.

Paid to account of Expenses in the

University, as per Table I. (page 46).		
Fellowships,	$11,150.00	
Prizes,	550.00	
Salaries and other expenses,	47,632.84	
Interest on advances,	1,995.21	
Repairs and improvement on Sever Hall and Sacramento St. houses from Univ. funds,	12,010.12	$73,338.17
College, as per Table II. (page 48).		
Salaries for instruction,	198,627.29	
Repairs on College Edifices, not valued on Treasurer's books,	12,322.34	
General expenses,	58,387.42	
Scholarships,	29,955.01	
Beneficiaries,	22,948.73	
Prizes,	1,135.32	
Botanic Garden,	8,224.39	
Herbarium,	6,329.84	
Hemenway Gymnasium,	7,886.02	
Carey Athletic Building,	1,302.04	
Jefferson Physical Laboratory,	2,957.12	
Account of new Botanical Building,	9,798.12	
Books for special departments,	4,994.61	
Apparatus &c., from special gifts,	2,548.34	
Account of Professor **Cooke's** addition to the University Museum,	10,366.61	
Printing, from Publication Funds,	1,420.86	
Summer Schools,	5,726.46	
Appleton Chapel,	7,564.03	
Appropriations for collect'ns and laboratories,	17,320.63	409,815.18
Library, as per Table III. (page 56).		
Books,	13,905.33	
Salaries and other expenses,	27,999.54	41,904.87
Divinity School, as per Table IV. (page 58).		
Salaries and other expenses,	26,517.55	
Scholarships and Beneficiaries,	2,090.21	28,607.76
Law School, as per Table V. (page 60).		
Salaries and other expenses,		45,402.46
Medical School, as per Table VI. (page 61).		
Salaries, Laboratory expenses, &c.,	54,744.73	
Scholarships and Beneficiaries,	1,625.00	
Fees repaid to Instructors,	3,568.50	
Boylston Medical Prizes,	52.00	
Amounts carried forward,	$59,990.23	$599,068.44

General Statement of Receipts and Disbursements for the year ending

INCOME (*continued*).

Amounts brought forward, . . .	$26,304.50	$205,574.44
Dividends on Stocks.		
Fitchburg R. R., preferred, ...	817.50	
N. Y., New Haven & Hartford R. R., .	4,875.00	
Boston & Providence R. R.	70.00	32,067.00
Real Estate, from rents, &c. (gross receipts).		
Cambridge (Houses and Lands), ...	37,750.88	
Boston (general investments), ...	111,356.80	
Bussey real estate, ...	37,772.55	
Sundry estates, ...	12,956.54	199,836.77
Term Bills.		
College, as per Table II., ...	260,587.33	
Divinity School, as per Table IV., ...	5,394.38	
Law School, as per Table V., ...	40,450.00	
Medical School, as per Table VI., ...	67,615.33	
Dental School, as per Table VII., ...	7,040.00	
Lawrence Scientific School, as per Table VIII., .	13,551.50	
Bussey Institution, as per Table X., ...	670.00	
School of Veterinary Medicine, as per Table XI.,	2,427.00	397,735.54
Sundries.		
William Pennoyer Annuity, ...	171.00	
Professor **Gray's** copyrights, ...	2,518.23	
Trustee of **Thayer** Scholarships, ...	3,000.00	
Trustees of **Edward Hopkins,**	229.30	
Trustee of **William B. Spooner,**	333.33	
Use of Library by resident graduates and others, .	220.00	
Sale of grass, wood, old material, etc., ...	5,040.91	
" " old examination papers, ...	319.16	
" " time signals from Observatory, ...	2,933.34	
" " tickets to Commencement Dinner, ...	687.00	
" " books, pamphlets, catalogues, &c., ...	2,380.14	
Board of horses, cattle, &c. at Bussey Institution,	1,764.69	
Repayment of advances for microscopes, ...	200.00	
Laboratory instruction to Dental and Veterinary students, ...	483.00	
Use of lockers at Gymnasium and Athletic Build'g,	2,532.00	
Fees for admission examinations, &c., ...	1,402.00	
Fees in Infirmary and Laboratory, Dental School,	4,705.30	
Fees from Veterinary Hospital and Forge, ...	17,015.97	
Subscribers to Veterinary Hospital, ...	1,770.00	
Balance of fees for Summer Courses, ...	8,107.50	
Laboratory fees { Chemical $6,274.63		
Laboratory fees { Physical 1,823.50		
Laboratory fees { Natural History . . . 1.972.50	10,070.63	65,884.00
Sundry gifts for immediate use, see page 19, ...		64,928.75
Total amount of income (carried forward), .		$966,026.50

by the Treasurer of Harvard College,
July 31, 1891.

EXPENSES (*continued*).

Amounts brought forward, ...		$59,990.23	$599,068.44
Warren Anatomical Museum, ...		310.67	
J. Ingersoll Bowditch Fund.		228.68	
Ellis Gift, ...		204.31	
Account of new addition, ...		27,531.00	
General expenses, ...		12,952.66	101,217.55
Dental School, as per Table VII. (page 63).			
Salaries and other expenses, ...			8,669.44
Lawrence Scientific School, as per Table VIII. (page 64).			
Salaries and other expenses, ...		20,840.44	
Museum of Comparative Zoölogy, ...		29,913.80	50,754.24
Observatory, as per Table IX. (page 65), ...			64,958.46
Bussey Institution, as per Table X. (page 66),		11,480.24	
Arnold Arboretum, as per Table X. (page 66),		10,488.70	21,968.94
School of Veter'y Medicine, as per Table XI. (page 67), .			20,905.78
Real Estate, expenses.			
Insurance.			
Cambridge, ...	$225.00		
Boston (general investments), . .	1,156.39		
Bussey real estate, ...	567.13		
Sundry estates, ...	48.00	1,996.52	
Taxes.			
Cambridge, ...	2,080.66		
Boston (general investments), . .	17,819.34		
Bussey real estate, ...	8,021.42		
Sundry estates, ...	871.81	28,793.23	
Interest.			
Bussey real estate (on advances), ...		1,875.69	
Repairs, improvements, care, cleaning and sundries.			
Cambridge, ...	8,487.03		
Boston (general investments), . .	7,359.30		
Bussey real estate, ...	2,065.06		
Sundry estates, ...	536.38	18,447.77	
Heating and hoisting for **Bussey** stores, including repairs and renewal of apparatus, ...	5,488.92		
Less for sales of heat and power, .	2,215.68	3,273.24	54,886.45
Amount carried forward, ...			$921,929.30

General Statement of Receipts and Disbursements for the year ending

Amount brought forward, ...		$966,026.50

RECEIPTS EXCLUSIVE OF INCOME.

GIFTS.

Edward Russell Scholarship (additional), ...	$200.00	
Lowell Fund for a Botanic Garden (additional), . .	1,000.00	
Law School Book Fund " . .	5,000.00	
Medical School Subscription Fund " . .	6,500.00	
Henry T. Morgan Fund " . .	6.81	
Henry Warren Torrey Fund, ...	10,000.00	
The **Joseph Lovering** Fund for Physical Research,	7.720.00	
Henry B. Humphrey Fund, ...	10,000.00	
George William Sawin Fund, ...	3,063.00	
William B. Spooner Fund, ...	10,000.00	
Charlotte F. Blanchard Fund, ...	4,771.33	
George Cheyne Shattuck Memorial Fellowship, .	5,000.00	
John Ware " " .	5,000.00	
Charles Eliot Ware " " .	5,000.00	
J. Huntington Wolcott Fund, ...	10,000.00	
Huntington Frothingham Wolcott Fund, . . .	10,000.00	
Dental School Endowment (additional), ...	7,050.00	100,311.14

SALES.

$12,000 **Burl. & Mo. R.** (Neb.) R. R. 6's (paid off),	12,000.00	
3,000 **Ft. Scott, So. E. & Memp. R. R.** 7's "	3,150.00	
8,000 **Michigan Air Line R. R.** 8's, . . . "	8,000.00	
150,000 **Kansas City & Cameron R. R.** 10's, ...	150,000.00	
1,886 shares **Boston & Maine R. R.** preferred, . .	263,804.25	
700 " **N. Y., New Haven & Hartford R. R.**,	188,562.50	
250 " **Union Stock Yard & Transit Co.**, .	37,500.00	
31 " **Nashua Manufacturing Co.**, ...	17,221.25	
73 " **Cheshire R. R.** pref. (exchanged), .	8,614.00	
Cheshire R. R. dividend of capital, ...	219.00	
Scrip **Fitchburg R. R.**, ...	28.67	
Rights **Boston & Maine R. R.**, ...	5,587.12	694,686,79

SUNDRIES.

From Dining Hall Association, to reduce debt, . .	1,500.00	
Advances to premiums on $2,182,050 R.R.B., repaid,	31,790.50	
" " accrued interest and expenses on Bonds repaid, ...	1,803.45	
" " Observatory Real Estate repaid, . . .	440.12	
" " improvements on **Gray** and **Andrews** Estates repaid, ...	953.56	36,487.63
Amount carried forward, ...		$1,797,512.06

by the Treasurer of Harvard College,
July 31, 1891.

EXPENSES (*continued*).

Amount brought forward,		$921,929.30
Improvements on The Soldier's Field,		8,877.53
Walter Hastings Building Bequest.		
Paid on account of the erection of **Walter Hastings** Hall (additional),		3,728.93
Annuities.		
Bussey,	$6,300.00	
Gore,	607.39	
Lucy Osgood,	420.00	
Class of 1802,	105.33	
Bemis,	2,550.72	
Gurney,	1,000.00	
George William Sawin,	70.00	11,053.44
Class Funds.		
Paid the Secretary of the **Class of 1834,**	$40.00	
" " " " **1853,**	121.00	161.00
Sundry payments from income.		
To the Treasurer of the Museum of Fine Arts, from **Gray** Fund for Engravings,	790.25	
Part of the income of the **Daniel Williams** Fund for the benefit of the Mashpee Indians,	529.54	
The income of the **Sarah Winslow** Fund, to the Minister and Teacher at Tyngsboro', Mass.,	231.72	
For account of the Semitic collection and library,	3,597.74	
Legal services,	1.53	5,150.78
Total amount of expenses,		$950,900.98

INVESTMENTS AND SUNDRY PAYMENTS.

Burl. & Mo. River (Neb.) R. R. 6's,	$10,000 cost,	$10,225.00	
New Eng. Teleph. & Telegr. Co. 6's,	125,000 "	127,968.75	
Chic. Junc. R'ys & Un. Stock Y'ds 5's,	100,000 "	95,795.00	
Massachusetts 5's, 1894 (**Paine** Fund),	2,000 "	2,122.50	
Paid for accrued interest and expenses on the above bonds,		1,397.20	
550 shares N. Y., New Haven & Hartford R. R.,		123,768.75	
550 " " " " " (on acc't),		93,352.76	
12 " Boston & Prov. R. R. (**Sawin** Fund),		3,063.00	
97 " Fitchburg R. R. preferred (exchanged),		8,614.00	466,306.96
Amount carried forward,			$1,417,207.94

General Statement of Receipts and Disbursements for the year ending

Amount brought forward, ...	$1,797,513.06

Balance, August 1, 1890.		
Cash in Suffolk National Bank, ...	$42,672.69	
Cash in New England Trust Co., ...	16,513.21	
Cash in hands of Charles F. Mason, Bursar, .	7,196.03	
Term Bills due October, 1890, ...	105,764.16	
" " overdue, ...	2,262.38	174,408.47
Total, ...		$1,971,920.53

by the Treasurer of Harvard College,
July 31, 1891.

Amount brought forward, ...		$1,417,207.94

INVESTMENTS AND SUNDRY PAYMENTS (*continued*).

95% of subscription for $25,000 Chicago Junction Railways & Union Stock Yards 5s, ...		23,750.00
Improvements on **Gray** and **Andrews** Estates, ...		3,000.00
Purchase of **Rindge** Marsh (balance), ...		751.65
Paid on account of the extension of the Natural History Laboratories, and for purchase of fossils, ...	4,016.51	
Less amount repaid by Museum of Comparative Zoölogy, ...	1,686.85	2,329.66
Invested in notes of Manufacturing Companies, &c.,	1,515,000.00	
Less mortgages and notes paid off, ...	1,178,500.00	336,500.00
Paid Baring Brothers & Co., in account, ...	$207.37	
Less commission and expenses, ...	4.37	203.00

Balance, July 31, 1891.			
Cash in Suffolk National Bank, ...		$32,435.52	
Cash in New England Trust Co., ...		16,733.42	
Check in Treasurer's Office, for deposit, ...		133.06	
Cash in hands of Charles F. Mason, Bursar, . .		18,131.57	
Term Bills due October, 1891, ...		118,501.59	
" " overdue, ...		2,243.12	188,178.28
Total, ...			$1,971,920.53

The following Account exhibits the State of the Property, as entered upon the Treasurer's Books, July 31, 1891.

Separate Investments, as stated in detail on pages 8, 9, and 10 of this report, consisting of		
Mortgages and Notes,	$83,353.03	
Railroad Bonds,	250,284.00	
Sundry Bonds,	136,938.75	
Railroad Stocks,	365,485.54	
University Houses and Lands,	435,757.89	
Other Real Estate,	457,587.10	
Sundries,	54,917.65	
Amounting to		$1,784,323.96
And "General Investments" as follows: —		
Mortgages and Notes.		
Mortgages,	29,646.97	
Amoskeag Manufacturing Co.'s Note,	200,000.00	
Boott Cotton Mills' Notes,	80,000.00	
Chicago, Burlington & Quincy R. R. Note,	150,000.00	
Lawrence Manufacturing Co.'s Note,	70,000.00	
Lowell Manufacturing Co.'s Note,	50,000.00	
Lowell Bleachery's Note,	20,000.00	
Merrimack Manufacturing Co.'s Note,	50,000.00	
Pacific Mills' Notes,	220,000.00	
Stark Mills' Notes,	110,000.00	
Tremont & Suffolk Mills' Note,	25,000.00	1,004,646.97
Railroad Bonds.		
$312,000 Burl. & Mo. R. in Nebr. non ex. 6's,	312,000.00	
50,000 Kan. City, St. Jos. & C. B., 1st M. 7's,	50,000.00	
25,000 Lincoln & No. West., 1st M. 7's,	25,000.00	
150,000 Atchison & Nebraska, 1st M. 7's,	150,000.00	
107,000 Ft. Scott, So. E. & Mem., 1st M. 7's,	107,000.00	
393,000 Eastern, 1st Mortg. 6's,	393,000.00	
£14,600 Eastern, " " " Sterling,	71,050.90	
674,000 Chicago, Burl. & Quincy Consol. 7's,	674,000.00	
60,000 Chicago, Burl. & Quincy 5's,	60,000.00	
100,000 Chicago, Burl. & Quincy Conv. 5's,	100,000.00	
175,000 U. P. Omaha Bridge 1st M. 5's,	175,000.00	
Railroad Bond Premiums,	298,062.41	2,415,113.31
Sundry Bonds.		
$100,000 Metropolitan Tel. & Tel. Co. 1st M. 5's,	99,500.00	
100,000 New England " " " " 6's,	102,375.00	
100,000 Chicago Junct. Railways and Union Stock Yards Coll. Trust 5's,	97,295.00	299,170.00
Amount carried forward,		$5,503,254.24

Amount brought forward, . . .		$5,503,254.24
Sundry Stocks.		
Amoskeag Manufacturing Co., . . . 12 shares,	3,654.00	
Merrimack " " . . . 17 "	17,000.00	
Pacific Mills, ... 20 "	17,468.29	
N. Y., New Haven & Hartford R. R., 350 "	78,543.75	
" " " " " " paid on account of 450 shares	76,327.76	192,993.80
Real Estate.		
Amory Estate, Franklin Street, Boston, . . .	165,615.81	
Webb Estate, Washington Street, Boston, . .	164,604.79	
Gray and Andrews Estates, Washington Street, Boston, ...	664,263.16	
Cole Estate, Washington Street, Boston, . . .	250,000.00	
Estate on Hawley Street, Boston, ...	38,650.78	
Estate on Hawkins Street, Boston, ...	29,476.09	
Reversion of Buildings in Brattle Street, Boston,	1,000.00	1,313,610.63
Sundries.		
Due from Dining Hall Association, ...	22,732.16	
" " Lawn Tennis Association, ...	250.00	
" " Bussey Trust, ...	37,513.76	
" " School of Veterinary Medicine, . .	16,518.94	
" " Observatory, ...	3,676.31	
Advances to University Lands, ...	30,000.00	
" " Botanical Department	6,905.57	
Baring Brothers & Co., ...	947.83	
Term bills due October, 1891, ...	118,501.59	
" " overdue, ...	2,243.12	239,289.28
Cash in Suffolk National Bank, ...	32,435.52	
" " hands of Charles F. Mason, Bursar, . . .	18,131.57	
Check in Treasurer's Office, for deposit, ...	133.06	50,700.15
Total, ...		$7,299,848.10

The foregoing Property represents the following Funds and Balances, and is answerable for the same.

Principal, Aug. 1, 1890.	UNIVERSITY FUNDS.	Principal, July 31, 1891.	
$107,737.54	Stock Account (so called), . .	$130,444.37	
125,138.74	Ins. and Guaranty F'd (so called), .	141,638.74	
15,750.00	**Israel Munson** Fund, ...	15,750.00	
16,871.63	**Leonard Jarvis** "	16,871.63	
9,000.00	**Sever** Fund (unrestricted), . . .		
25,000.00	**John C. Gray** Fund, ...	25,000.00	
115,966.56	**George B. Dorr** Fund, ...	115,966.56	
5,000.00	**Seth Turner** Fund, ...	5,000.00	
113,817.44	**Francis E. Parker** Fund, . . .	113,817.44	
30,000.00	**William Perkins** Fund,. . . .	30,000.00	
25,370.03	**John L. Russell** Fund, ...	25,370.03	
5,000.00	**Stanton Blake** Fund, ...	5,000.00	
21,303.78	**Walter Hastings** Fund, ...	20,382.57	
	Charlotte F. Blanchard Fund . .	4,771.33	
	Joseph Lee Fund	10,000.00	
62,981.34	President's Fund, ...	63,224.86	
155.13	**Thomas Cotton** Fund, ...	155.04	
5,250.00	**Samuel D. Bradford** Fund, . . .	5,250.00	
242,211.97	Retiring Allowance Fund, ...	254,685.89	
22,000.00	**John Cowdin** Fund, ...	22,000.00	
56,376.99	**John Parker** Fellowships, . . .	56,655.41	
10,756.96	**Robert Treat Paine** Fellowship, .	10,810.95	
10,626.62	**Harris** Fellowship, ...	10,923.91	
10,846.76	**John Thornton Kirkland** Fellows'p,	10,855.38	
10,999.53	**James Walker** Fellowship, . . .	11,066.03	
32,082.28	**Rogers** Fellowships, ...	31,859.50	
10,628.07	**Henry Lee** Memorial Fellowship, .	10,725.41	
10,178.07	**Ozias Goodwin** Memorial Fellows'p,	10,252.24	
10,178.07	**H. B. Rogers** Memorial Fellowship,	10,252.24	
81,943.73	**Henry T. Morgan** Fund, . . .	81,950.54	
11,189.70	**John Tyndall** Scholarship, . . .	11,265.98	
2,215.27	**Sumner** Prize Fund, ...	2,329.34	
6,148.20	**George B. Sohier** Prize Fund,. .	6,214.82	
316.40	**John O. Sargent** Prize Fund, . .	332.67	
6,464.86	Lectures on Political Economy Fund,	6,797.81	
150.00	**Robert N. Toppan** Prizes (balance),	150.00	
	Robert Treat Paine Prizes "	200.00	
150.00	Dante Prizes "	150.00	
200.00	Semitic Prizes "	200.00	$1,278,320.69
	COLLEGE FUNDS.		
27,748.64	**Alford** Professorship, ...	27,748.64	
28,337.40	**Boylston** "	28,337.40	
21,619.50	**Eliot** "	21,619.50	
10,000.00	**Eliot** " **(Jon. Phillips's gift)**	10,000.00	
$1,307,711.21	. . . Amounts carried forward, . .	$87,705.54	$1,278,320.69

Principal, Aug. 1, 1890.			Principal, July 31, 1891.
$1,307,711.21	. . . Amounts brought forward, . .	$87,705.54	$1,278,320.69
3,500.01	Erving Professorship, ...	3,500.01	
35,990.99	Fisher "	35,990.99	
20,217.08	Hersey "	20,217.08	
21,744.18	Hersey " (Thomas Lee's gift),	21,744.18	
3,747.33	Hollis " (Mathematics),	3,747.33	
34,517.60	Hollis " (Divinity), . . .	34,517.60	
43,062.93	McLean "	43,062.93	
21,000.00	Perkins "	21,000.00	
25,020.19	Plummer "	25,020.19	
52,500.00	Pope "	52,500.00	
56,441.25	Rumford "	56,441.25	
23,139.83	Smith "	23,139.83	
180,772.57	Gurney Fund, ...	184,582.38	
16,240.38	Fund for Permanent Tutors, . . .	16,240.38	
15,796.97	Lee Fund for Reading, ...	15,796.97	
145,000.00	Class Subscription Fund, . . .	145,000.00	
2,840.32	Paul Dudley Fund for Lectures, .	2,886.58	
31,500.00	Jonathan Phillips F'd (unrestricted),	31,500.00	
1,050.00	John A. Blanchard " "	1,050.00	
5,120.50	John W. P. Abbot " "	5,384.23	
13,286.60	Daniel H. Peirce " "	13,353.08	
6,230.00	Daniel Austin " "	6,230.00	
2,088.41	Schol. & Benef. money ret. (balance),	2,383.02	
343.93	Henry Flynt's Bequest, ...	344.61	
3,406.62	Abbot Scholarship, ...	3,432.08	
1,081.87	Alford "	1,137.59	
5,305.19	Bartlett "	5,328.40	
5,634.64	Bassett "	5,664.84	
11,906.22	Bigelow "	11,936.04	
109,424.65	Bowditch "	109,560.04	
339.34	Bright " (balance), . . .	376.84	
3,503.95	Browne "	3,534.41	
6,144.46	Buluff S. Choate Scholarship, . .	6,160.88	
7,382.71	Class of 1802 Scholarship, . . .	7,457.60	
2,945.29	" 1814 "	2,946.96	
5,545.77	" 1815 " (Kirkland),	5,631.39	
3,917.91	" 1817 "	3,969.69	
3,180.68	" 1828 "	3,344.50	
3,157.94	" 1835 "	3,320.58	
4,095.11	" 1841 "	4,106.00	
4,493.23	" 1852 " (Dana), .	4,724.62	
10,000.00	" 1856 "	10,000.00	
3,078.35	" 1867 "	3,231.61	
9,987.21	Crowninshield "	10,501.54	
600.00	W. H. Cudworth " (balance),	600.00	
5,397.96	George & Martha Derby Scholar'p,	5,425.96	
5,363.31	W. S. Eliot Scholarship, ...	5,389.50	
5,834.96	Farrar "	5,835.46	
$2,290,584.65	. . . Amounts carried forward, .	$1,076,954.66	$1,278,320.69

Principal, Aug. 1, 1890.			Principal, July 31, 1891.
$2,290,584.65	. . . Amounts brought forward,	$1,076,954.66	$1,278,320.69
10,061.75	**Richard Augustine Gambrill** Sch.	10,179.94	
6,000.00	**Charles Haven Goodwin** Sch. . .	6,004.43	
3,206.02	**Greene** Scholarship, ...	3,371.13	
5,804.75	**Levina Hoar** Scholarship, ...	5,853.71	
9,584.05	**Hodges** "	10,077.63	
5,340.98	**Hollis** "	5,416.04	
3,547.06	**Matthews** " (balance), .	4,438.39	
5,162.69	**Merrick** "	5,228.58	
7,566.33	**Morey** "	7,655.98	
6,682.70	**Pennoyer** "	6,698.96	
3,245.30	**Perkins** "	3,412.42	
865.66	**Rodger** "	910.26	
3,291.72	**Henry B. Rogers** "	3,311.26	
2,912.96	**Edward Russell** "	3,273.28	
5,788.38	**Mary & Leverett Saltonstall** Sch.,	6,086.46	
956.10	**Dorothy Saltonstall** Scholarship, .	1,005.33	
3,191.75	**Sever** Scholarship, ...	3,206.14	
9,760.69	**Sewall** "	9,863.38	
46,452.88	**Shattuck** "	46,828.54	
5,739.49	**Slade** "	5,701.71	
3,344.85	**Story** "	3,517.12	
2,463.67	**Stoughton** "	2,523.87	
4,037.03	**Gorham Thomas** "	4,044.94	
6,963.45	**Toppan** "	7,022.04	
24,464.94	**Townsend** "	24,608.23	
3,988.45	**Walcott** "	4,093.83	
10,204.21	**Whiting** "	10,229.72	
.	**Henry B. Humphrey** Fund, . .	10,139.77	
9,833.88	**Exhibitions**, ...	9,834.69	
1,796.14	**Palfrey** Exhibition, ...	1,798.63	
1,200.00	**Samuel Ward** Fund, ...	1,200.00	
1,592.94	**John Glover** "	1,674.98	
10,984.26	**Quincy Tufts** "	11,008.94	
5,368.00	**Day** "	5,380.28	
10,375.88	**Munroe** "	10,398.24	
8,102.23	**Price Greenleaf** Aid (balance), . .	4,311.68	
4,059.38	**Boylston** Prizes for Elocution, . .	4,013.42	
13,178.48	**Bowdoin** Prizes for Dissertations, .	13,232.15	
1,199.20	**Hopkins** Gift for "Deturs" (balance),	1,234.93	
682.15	**Chauncey Wright** Fund, ...	717.27	
50,000.00	**Increase S. Wheeler** Fund, . . .	50,000.00	
1,033.57	Fund for Religious Services, . . .	1,033.57	
15,417.88	**John E. Thayer** Fund, ...	15,613.69	
6,345.73	Classical Publ. F'd of **Class of 1856**,	6,372.55	
42,099.18	Botanic Department Fund, ...	39,763.10	
56,882.31	**Lowell** Fund for a Botanic Garden, .	57,882.31	
23,695.86	Herbarium Fund, ...	25,020.29	
141.29	**Carey** Building Gift (balance), . .		
$2,755,200.87	. . . Amounts carried forward, .	$1,552,148.47	$1,278,320.69

Principal, Aug. 1, 1890.			Principal, July 31, 1891.
$2,755,200.87	. . . Amounts brought forward,	$1,552,148.47	$1,278,320.69
75,000.00	Physical Laboratory Endowment, . .	75,000.00	
	Henry Warren Torrey Fund, . .	10,091.60	
	Joseph Lovering " . .	7,879.84	
395.12	**Jefferson** Physical Lab'y (balance),	1,320.84	
5,309.34	Gifts for Addition to Museum "	301.30	
1,385.29	Sundry Gifts (unexpended balances),	1,753.77	
2,882.44	Gifts for Botanical Building (balance),		
	" " Psychol. Lab'y and Lib'y "	2,485.88	
	" " Classical Library "	2,793.08	
	" " Historical " "	565.26	
	" " Geological Department "	2,515.62	1,656,855.16

LIBRARY FUNDS.

100,000.00	**Eben Wright** Fund, ...	100,000.00	
26,004.25	**Constantius** Fund, ...	25,976.77	
500.00	**Jarvis** Fund, ...	500.00	
10,572.25	**Daniel Treadwell** Fund, ...	10,572.25	
10,567.50	Subscription for Library, ...	10,569.93	
2,118.84	**Bowditch** Fund, ...	2,122.35	
112.57	**Bright** " (balance), . . .	242.82	
5,306.39	**Denny** "	5,301.37	
5,448.20	**Farrar** "	5,310.15	
3,135.50	**Haven** "	3,142.28	
10,093.91	**Hayes** "	10,085.61	
5,266.56	**Hayward** "	5,278.48	
2,397.98	**Hollis** "	2,392.08	
2,105.45	**Homer** "	2,115.93	
5,310.50	**Lane** "	5,316.40	
22,454.50	**Lowell** "	28,000.21	
60,041.01	**Minot** "	61,168.58	
6,993.98	**Mary Osgood** "	7,017.22	
7,168.19	**Lucy Osgood** "	7,149.58	
5,349.07	**Salisbury** "	5,485.29	
20,092.68	**Sever** "	20,132.33	
4,117.88	**Shapleigh** "	4,086.64	
37,509.36	**Sumner** "	37,589.39	
5,047.32	**Tucker** "	5,002.42	
5,298.65	**Ward** "	5,305.86	
15,937.04	**Walker** "	15,992.76	
196.16	**Wales** Gift (balance), ...	248.83	
581.54	**Waterston** " "	548.32	
	J. Huntington Wolcott Fund, . .	10,064.37	
204.24	Sundry gifts, etc. (unexpended balances),	156.08	391,874.30

DIVINITY SCHOOL FUNDS.

27,403.37	**Divinity School** (balance), ...	28,313.82	
37,583.74	**Bussey** Professorship, ...	37,583.74	
16,015.81	**Parkman** "	16,015.81	
$3,301,102.50	. . . Amounts carried forward, .	$82,413.37	$3,327,050.15

Principal, Aug. 1, 1890.		Principal, July 31, 1891.	
$3,301,102.50	. . . Amounts brought forward, .	$82,413.37	$3,327,050.15
6,008.43	Hancock Professorship, ...	6,008.43	
48,345.73	Winn Prof. of Ecclesiastical History,	48,845.73	
20,280.38	Dexter Lectureship, ...	20,280.38	
9,184.69	Henry Lienow Fund, ...	9,184.69	
5,250.00	Mary P. Townsend "	5,250.00	
2,100.00	Winthrop Ward "	2,100.00	
1,050.00	Samuel Hoar "	1,050.00	
1,050.00	Abraham W. Fuller Fund, . . .	1,050.00	
1,050.00	Caroline Merriam " . . .	1,050.00	
7,875.00	Joseph Baker " . . .	7,875.00	
40,000.00	Th. Tileston of New York Endowm't,	40,000.00	
10.000.00	Henry P. Kidder Fund, ...	10,000.00	
17,000.00	Oliver Ames Fund, ...	17,000.00	
1,000.00	Abby Crocker Richmond Fund, .	1,000.00	
71,427.02	New Endowment, ...	71,427.02	
1,000.00	John L. Russell Fund, ...	1,000.00	
1,296.05	John W. Quinby Fund, . . .	1,362.79	
	William B. Spooner " . . .	10,000.00	
911.34	Lewis Gould " . . .	911.34	
2,177.95	Joshua Clapp " . . .	2,177.95	
525.00	Hannah C. Andrews " . . .	525.00	
1,000.00	Adams Ayer " . . .	1,000.00	
890.00	Daniel Austin " . . .	890.00	
14,070.88	Jackson Foundation, ...	14,102.20	
5,139.34	Thomas Cary Scholarships, . .	5,164.00	
2,439.22	George Chapman " . .	2,464.83	
4,001.08	Joshua Clapp " . .	4,082.13	
4,564.44	J. Henry Kendall " . .	4,705.84	
3,211.85	Nancy Kendall " . .	3,237.27	
12,923.86	Abner W. Buttrick Fund, . . .	12,989.45	
1,050.00	William Pomroy " . . .	1,050.00	
2,511.76	Beneficiary money returned, . . .	2,641.13	392,838.55
	LAW SCHOOL FUNDS.		
32,532.62	Law School (balance), ...	44,168.50	
15,750.00	Dane Professorship, ...	15,750.00	
23,979.82	Bussey "	23,979.82	
8,340.81	Royall "	8,340.81	
94,994.97	New "	94,994.97	
42,021.25	Law School Book Fund, ...	47,021.25	234,255.35
	LAWRENCE SCIENTIFIC SCHOOL, AND MUSEUM OF COMPARATIVE ZOÖLOGY FUNDS.		
5,265.12	Lawrence Scientific School (balance),	7,589.68	
38,807.17	Professorship of Engineering, . .	38,807.17	
61,536.43	Abbott Lawrence Fund, ...	61,536.43	
$3,923,664.71	. . . Amounts carried forward, .	$107.933.28	$3,954,144.05

Principal, Aug. 1, 1890.		Principal, July 31, 1891.	
$3,923,664.71	. . . Amounts brought forward,	$107,933.28	$3,954,144.05
50,375.00	**James Lawrence** Fund, ...	50,375.00	
30,686.85	**John B. Barringer** "	30,686.85	
100,440.00	**Sturgis Hooper** "	100,400.00	
	Rotch Building Gift (balance), . .	10,008.33	
50,000.00	**Gray** Fund for Zoölogical Museum,	50,000.00	
297,933.10	**Agassiz Memorial** Fund, } . .	297,933.10	
7,594.01	Teachers' and Pupils' " } . .	7,594.01	
117,469.34	Permanent Fund, ...	117,469.34	
7,740.66	**Humboldt** "	7,740.66	780,140.57

MEDICAL SCHOOL FUNDS.

58,212.77	Medical School (balance), ...	63,429.59	
19,192.65	**Jackson** Medical Fund, ...	19,192.65	
17,129.20	**Geo. C. Shattuck** "	17,129.20	
13,141.50	**Warren** Fund for Anatom'l Museum,	13,507.64	
3,320.86	**Boylston** Fund for Medical Prizes,	3,439.89	
3,417.89	**Boylston** " " " Books,	3,593.92	
2,027.12	Medical Library Fund, ...	1,881.62	
2,000.00	**Quincy Tufts** Medical Fund, . .	2,000.00	
25,512.68	**Edward M. Barringer** " . .	25,512.68	
15,765.11	**Mary W. Swett** Fund, ...	15,765.11	
20,000.00	**Samuel W. Swett** "	20,000.00	
1,836.08	**Samuel E. Fitz** "	1,836.08	
26,892.04	**H. F. Sears** Building Gift (balance),		
6,172.90	**J. Ingersoll Bowditch** Fund, . .	6,262.13	
20,250.00	New Subscription Fund, ...	26,750.00	
190.33	**John Foster** Income for Medical Students (balance), ...	65.33	
5,192.20	**D. W. Cheever** Scholarship, . .	5,259.59	
	Geo. Cheyne Shattuck Memorial Fellowship, ...	5,064.37	
	John Ware Memorial Fellowship,	5,064.37	
	Chas. Eliot Ware " "	5,064.37	
	Ellis Gift (balance), ...	1,814.11	242,632.65

OBSERVATORY FUNDS.

110,293.88	**Edward B. Phillips** Fund, . . .	110,293.88	
21,000.00	**James Hayward** " . . .	21,000.00	
27,543.15	**David Sears** " . . .	28,252.38	
11,721.16	**Josiah Quincy** " . . .	11,436.92	
2,000.00	**Charlotte Harris** " . . .	2,000.00	
5,000.00	**Thomas G. Appleton** " . . .	5,000.00	
13,380.00	**Augustus Story** Fund, ...	13,380.00	
50,000.00	Observatory Endowment, ...	50,000.00	
120,110.35	**Robert Treat Paine** Fund, . .	120,110.35	
50,000.00	**Paine** Professorship, ...	50,000.00	
$5,237,205.54	. . . Amounts carried forward, .	$411,473.53	$4,976,917.27

Principal, Aug. 1, 1890.		Principal, July 31, 1891.	
$5,237,205.54	. . . Amounts brought forward,	$411,473.53	$4,976,917.27
228,047.31	**Uriah A. Boyden** Fund, ...	211,224.33	
43,611.14	**Bruce** Gift (balance), ...	43,536.17	
2,500.00	**J. Ingersoll Bowditch** Fund, . .	2,500.00	
799.57	**Draper Memorial** (balance), . .	929.31	
	Gifts for Building " . . .	1,830.54	671,493.88

OTHER FUNDS FOR SPECIAL PURPOSES.

413,092.80	**Bussey** Trust (income thereof, ½ to Bussey Institution, ¼ to Law School, and ¼ to Divinity School), . . .	413,092.80	
8,906.67	Bussey Institution (balance), . . .	11,825.39	
609.02	**Bussey** Building Fund, ...	609.02	
154,850.04	**James Arnold** "	155,248.77	
6,050.61	Arnold Arboretum " (balance), .	4,433.53	
50,000.00	**Bright** Legacy, ...	50,000.00	
36,545.12	**Robert Troup Paine** Fund, . . .	38,155.94	
42,000.00	**James Savage** Fund, ...	42,000.00	
3,171.50	**John Foster** "	3,171.50	
29,939.33	**Henry Harris** "	29,939.33	
16,386.78	**Gray** Fund for Engravings, . . .	16,420.38	
3,790.44	**Gospel Church** Fund, ...	3,985.62	
3,625.00	Fund of the **Class of 1853**, . . .	3,625.00	
1,000.00	" " " " " **1834**, . . .	1,000.00	
2,180.42	**Walter Hastings** Building Bequest,		
718,843.71	**Price Greenleaf** Fund, ...	718,283.71	
24,316.71	**Gore** Annuity Fund, ...	24,961.65	
5,029.28	**Lucy Osgood** Annuity Fund, . .	4,868.27	
50,728.42	**Bemis** Annuity Fund, ...	50,790.19	
118.98	Dental School (balance), ...	3,817.12	
8,155.85	Dental Subscription Fund, . . .	15,205.85	
9,422.14	Gifts for Semitic Collect. (balance),	6,186.76	
	" " " Library, " .	858.69	
	Geo. William Sawin Fund, . .	3,063.00	
	Huntington Frothingham Wolcott Fund, ...	10,064.37	
	Gains and Losses for General Investments, ...	18,590.84	1,630,197.73

FUNDS IN TRUST FOR PURPOSES NOT CONNECTED WITH THE COLLEGE.

16,125.90	**Daniel Williams** Fund for the conversion of the Indians, ...	16,426.85	
4,802.68	**Sarah Winslow** F'd, for the Minister and Teacher at Tyngsborough, Mass.,	4,812.37	21,239.22
$7,121,854.96			$7,299,848.10

Changes in the Funds during the year ending July 31, 1891.

Total amount of Funds and balances, July 31, 1891, as before stated,		$7,299,848.10	
Total amount of Funds and balances, August 1, 1890, as before stated,		7,121,854.96	
Showing a total increase during the year of			$177,993.14
Which is made up as follows: —			
Gifts forming new Funds or increasing old ones,		100,311.14	
Increase more than decrease of Funds and balances, which appear both at the beginning and end of the year,		33,304.96	
Increase of Funds established during the year,		712.56	
Credit balances created,		51,662.35	
Increase of Stock Account by credits from University Houses and Lands,		17,873.00	
Increase of Insurance and Guaranty Fund by credit from University Houses and Lands,		16,500.00	
		$220,364.01	
Deduct from this amount			
Decrease of Stock Account, by excess of expenditures over income in College, Library, and University accounts,	$714.68		
Sundry balances used up,	41,096.19		
Loss from change of special investment,	560.00		
		42,370.87	
			$177,993.14

Net increase of Funds and balances as above,	$120,052.87
Less decrease as above,	42,370.87
Leaving amount of the net increase of the Funds and balances, excluding gifts for capital account, as is also shown in the following table,	$77,682.00

Statement showing Changes in the Different Funds

Increase of Funds and balances which appear both at the beginning and the end of the year, being the excess of income (including gifts for immediate use) over payments towards the special objects of those Funds.

UNIVERSITY.

Stock Account,	$5,548.51	
President's Fund,	243.52	
Retiring Allowance Fund,	12,473.92	
Robert Treat Paine Fellowship,	53.99	
John Tyndall Scholarship,	76.28	
Sumner Prize Fund,	114.07	
Harris Fellowship,	297.29	
James Walker Fellowship,	66.50	
John Parker "	278.42	
John T. Kirkland "	8.62	
Henry Lee Memorial Fellowship,	97 34	
Ozias Goodwin " "	74.17	
H. B. Rogers " "	74.17	
John O. Sargent Prizes,	16.27	
George B. Sohier "	66.62	
Lectures on Political Economy,	332.95	$19,822.64

COLLEGE.

Daniel H. Peirce Fund,	66.43	
Paul Dudley Fund,	46.26	
Henry Flynt's Bequest,	.68	
John W. P. Abbot Fund,	263.73	
Gurney Fund,	3,809.81	
Abbot Scholarship,	25.46	
Alford "	55.72	
Bartlett "	23.21	
Bassett "	30.20	
Bigelow "	29.82	
Browne "	30.46	
R. S. Choate Scholarship,	16.42	
Class of 1802 "	74.89	
" **1815** " **(Kirkland)**,	85.62	
" **1817** "	51.78	
" **1828** "	163.82	
" **1835** "	162.64	
" **1841** "	10.89	
" **1852** " **(Dana)**,	231.39	
" **1867** "	158.26	
Crowninshield "	514.33	
George & Martha Derby Scholarship,	28.00	
W. S. Eliot Scholarship,	26.19	
Amounts carried forward,	$5,906.01	$19,822.64

and balances during the year ending July 31, 1891.

Decrease of Funds and balances which appear both at the beginning and the end of the year, being the excess of payments over income received (including gifts for immediate use) for the special objects of those Funds.

UNIVERSITY.

Thomas Cotton Fund,	.09	
Rogers Fellowships,	222.78	
Walter Hastings Fund,	921.21	$1,144.08

COLLEGE.

Slade Scholarship,	87.78	
Price Greenleaf Aid (balance),	3,790.55	
Boylston Prizes for Elocution,	45.96	
Botanic Department Fund,	2,336.08	
Gifts for addition to Museum,	5,008.04	11,218.41

LIBRARY.

Constantius Fund,	27.48	
Waterston Gift (balance),	33.22	
Farrar Fund,	138.05	
Hayes "	8.30	
Hollis "	5.90	
Lucy Osgood "	13.61	
Shapleigh "	31.24	
Denny "	5.02	
Tucker "	44.90	
Sundry gifts (unexpended balances),	48.16	355.88

LAWRENCE SCIENTIFIC SCHOOL AND MUSEUM OF COMPARATIVE ZOÖLOGY.

Sturgis Hooper Fund,		40.00

MEDICAL SCHOOL.

Medical Library Fund,	145.50	
Foster income for Medical Students (balance),	125.00	270.50

OBSERVATORY.

Uriah A. Boyden Fund,	16,822.98	
Josiah Quincy Fund,	284.24	
Bruce Gift (balance),	74.97	17,182.19
Amount carried forward,		$30,211.06

Statement showing Changes in the Different Funds

INCREASE.

Amounts brought forward, ...		$5,906.01	$19,822.64
Greene Scholarship, ...		165.11	
Hodges "		493.58	
Bowditch "		185.39	
Bright " (balance), ...		87.50	
Class of 1814 "		1.67	
Farrar "		.50	
R. A. Gambrill "		118.19	
C. H. Goodwin "		4.48	
Levina Hoar "		48.96	
Hollis "		75.06	
Pennoyer "		16.26	
Perkins "		167.12	
Rodger "		44.60	
Henry B. Rogers "		19.54	
Matthews " (balance), ...		891.33	
Merrick "		65.89	
Morey "		89.65	
Edward Russell "		160.32	
Mary & Leverett Saltonstall Scholarship, .		298.08	
Dorothy Saltonstall Scholarship, ...		49.23	
Sever Scholarship, ...		14.39	
Sewall "		102.69	
Shattuck "		375.66	
Story "		172.27	
Stoughton "		60.20	
Toppan "		58.59	
Townsend "		143.29	
Gorham Thomas "		7.91	
Walcott "		105.38	
Whiting "		25.51	
John Glover Fund, ...		82.04	
Bowdoin Prizes, ...		53.67	
Chauncey Wright Fund, ...		35.12	
Scholar. and Benefic. Money Returned (balance),		294.61	
John E. Thayer Fund, ...		195.81	
Classical Publication Fund, ...		26.82	
Herbarium Fund, ...		1,324.43	
Jefferson Physical Laboratory (balance), . . .		925.72	
Exhibitions, ...		.81	
Palfrey Exhibition, ...		2.49	
Quincy Tufts Fund, ...		24.68	
Day Fund, ...		12.28	
Munroe Fund, ...		22.36	
Hopkins Gift for "Deturs" (balance), ...		35.73	
Sundry gifts (unexpended balances), ...		368.48	13,259.36
Amount carried forward, ...			$33,082.00

and balances during the year ending July 31, 1891. (*Continued.*)

DECREASE.

Amount brought forward, ...		$30,211.06

FUNDS FOR SPECIAL PURPOSES.

Lucy Osgood Annuity Fund, ...	161.01	
Arnold Arboretum (balance), ...	1,617.08	
Gifts for Semitic Collection (balance), ...	3,235.38	5,013.47
		$35,224.53

Sundry balances used up.

Sever Fund, ...			9,000.00	
Walter Hastings Building		Bequest, ...	2,180.42	
Carey	"	Gift, ...	141.29	
Botanical	"	Gifts, ...	2,882.44	
H. F. Sears	"	Gift, ...	26,892.04	41,096.19

Decrease of Stock Account by excess of expenditures over income, in College, Library, and University Accounts, ...	714.68
Price Greenleaf Fund, loss from change of special investment, ...	560.00
Amount carried forward, ...	$77,595.40

Statement showing Changes in the Different Funds

INCREASE.

Amount brought forward, ...		$33,082.00
LIBRARY.		
Subscription Fund, ...	$2.43	
Lane "	5.90	
Lowell "	545.71	
Hayward "	11.92	
Sumner "	80.03	
Bowditch "	3.51	
Bright " (balance), ...	130.25	
Haven "	6.78	
Salisbury "	136.22	
Homer "	10.48	
Minot "	1,127.57	
Mary Osgood "	23.24	
Sever "	39.65	
Ward "	7.21	
Walker "	55.72	
Wales Gift (balance), ...	52.67	2,239.29
DIVINITY SCHOOL.		
Balance, ...	1,410.45	
Winn Professorship, ...	500.00	
John W. Quinby Fund, ...	66.74	
Jackson Foundation, ...	31.32	
Joshua Clapp Scholarship, ...	81.05	
J. H. Kendall "	141.40	
A. W. Buttrick Fund, ...	65.59	
Beneficiary Money Returned (balance), ...	129.37	
George Chapman Scholarship, ...	25.61	
Thomas Cary "	24.66	
Nancy Kendall "	25.42	2,501.61
LAW SCHOOL.		
Balance, ...		11,635.88
LAWRENCE SCIENTIFIC SCHOOL AND MUSEUM OF COMPARATIVE ZOÖLOGY.		
Balance, L. S. S., ...		2,324.56
MEDICAL SCHOOL.		
Balance, ...	5,216.82	
Warren Fund for Anatomical Museum, ...	366.14	
Boylston Fund for Medical Books, ...	176.03	
D. W. Cheever Scholarship, ...	67.39	
Boylston Fund for Medical Prizes, ...	119.03	
J. Ingersoll Bowditch Fund, ...	89.23	6,034.64
Amount carried forward, ...		$57,817.98

and balances during the year ending July 31, 1891. (*Continued.*)

DECREASE.

Amount brought forward, ...	$77,595.40
Amount carried forward, ...	$77,595.40

Statement showing Changes in the Different Funds

INCREASE.

Amount brought forward, ...		$57,817.98
OBSERVATORY.		
David Sears Fund, ...	$709.23	
Draper Memorial (balance), ...	129.74	838.97
FUNDS FOR SPECIAL PURPOSES.		
Bussey Institution (balances), ...	2,918.72	
James Arnold Fund, ...	398.73	
Robert Troup Paine Fund, ...	1,610.82	
Gospel Church Fund, ...	195.18	
Gore Annuity "	644.94	
Daniel Williams "	300.95	
Sarah Winslow "	9.69	
Gray Fund for Engravings, ...	33.60	
Bemis Annuity Fund, ...	61.77	
Dental School (balance), ...	3,698.14	9,872.54
Increase of Funds established during the year.		
Henry B. Humphrey Fund, ...	139.77	
Henry Warren Torrey "	91.60	
Joseph Lovering "	159.34	
J. Huntington Wolcott "	64.37	
Huntington Frothingham Wolcott Fund, .	64.37	
George Cheyne Shattuck Memor'l Fellowship,	64.37	
John Ware " "	64.37	
Charles Eliot Ware " "	64.37	712.56
Credit balances created.		
Robert Treat Paine, Gift for Prizes, ...	200.00	
Gifts for Psychological Laboratory and Library,	2,485.88	
" " Classical Library, ...	2,793.08	
" " Historical "	565.26	
" " Observatory Building, ...	1,830.54	
Gift " Geological Department, ...	2,515.62	
" " Semitic Library, ...	858.69	
Rotch Building Gift, ...	10,008.33	
Ellis Gift, ...	1,814.11	
Joseph Lee Fund, ...	10,000.00	
Gains and Losses for General Investments, . .	18,590.84	51,662.85
Increase of Stock Account by credits from University Houses and Lands, ...		17,873.00
Increase of Insurance and Guaranty Fund by credit from University Houses and Lands, ...		16,500.00
Total, ...		$155,277.40

and balances during the year ending July 31, 1891. (*Continued.*)

DECREASE.

Amount brought forward, ...	$77,595.40
Balance, which is the net increase of the Funds and balances for the year ending July 31, 1891, excluding gifts for capital account, ...	77,682.00
Total, ...	$155,277.40

The following tables are not found, in their present form, in the Treasurer's books. They are intended to exhibit with some detail the resources and the expenditures of each department of the University. The income of every Fund held by the University is given in these tables, and also the sum paid out for the specific object of each and every Fund, in case that sum be either less or more than the actual income of the Fund. If the object to which the income of a Fund is to be applied be a general one, — like salaries, for example, — no separate mention is made in these tables of that appropriation. That particular payment is merged with others of the same kind under the general heading. A balanced summary of these tables will be found on page 71.

Table No. I.

THE UNIVERSITY.

RECEIPTS.

Income of the unappropriated fund heretofore called the Stock Account, at present accumulating,		$5,548.51
Income of the following funds: —		
Insurance and Guaranty,		6,444.66
Israel Munson,		811.12
Leonard Jarvis,		868.91
Samuel D. Bradford,		270.37
John C. Gray,		1,287.50
George B. Dorr,		5,972.30
Seth Turner,		257.50
Henry T. Morgan,		4,220.27
Henry Harris, ½ of income,		770.93
Francis E. Parker,		5,861.58
William Perkins,		1,545.00
Stanton Blake,		257.50
John Cowdin, from special investment,		1,694.14
Walter Hastings, from sp. investm't,	$2,070.16	
Interest on accumulated income,	18.75	2,088.91
John L. Russell,		1,203.55
Charlotte F. Blanchard,		133.08
Thomas Cotton,		7.57
President's,		3,243.52
Parker Fellowships,		2,903.42
John Thornton Kirkland Fellowship,		558.62
Harris Fellowship,		547.29
James Walker Fellowship,		566.50
Rogers Fellowships,		1,652.22
Robert Treat Paine Fellowship,		553.99
John Tyndall Scholarship,		576.28
Henry Lee Memorial Fellowship,		547.34
Ozias Goodwin " "		524.17
Henry Bromfield Rogers Memorial Fellowship,		524.17
Sumner Prize,		114.07
George B. Sohier Prize,		316.62
Amount carried forward,		$51,871.61

TABLE I., CONTINUED.

RECEIPTS.

Amount brought forward, ...	$51,871.61	
John O. Sargent Prize, ...	16.27	
Retiring Allowance (accumulating), ...	12,473.92	
Lectures on Political Economy, ...	332.95	$64,694.75
From **John O. Sargent**, gift for prize, ...	100.00	
Andrew P. Peabody, gift for prizes, ...	200.00	
Robert Treat Paine, gift for prizes, ...	200.00	500.00
Balance remaining after dividing the net income among the Funds, ...	370.47	
Use of house by College officer, ...	400.00	
For care of the **Sarah Winslow** Fund, ...	5.94	
Sale of Catalogues, Calendars, and Directories, . . .	1,772.73	
Examination fees for degrees of Ph.D. and S.D., . .	60.00	
Net rents from Foxcroft and other University real estate,	781.80	3,390.94
		$68,585.69

PAYMENTS.

Overseers' Expenses.		
Advertising, postage, &c., ...	$221.60	
Printing President's Annual Report, ...	1,201.70	
Printing Treasurer's " "	248.30	
Printing other reports, and auditing Treasurer's accounts, ...	400.35	$2,071.95
Office Expenses.		
President's, ...	589.57	
Treasurer's, ...	676.58	
Bursar's, ...	1,779.94	
Supt. of Buildings' and Janitor's, ...	154.09	
Corporation Rooms (fuel, rent, furniture, &c.), .	2,558.03	5,758.21
Salaries.		
President, ...	8,007.66	
Treasurer and Deputy Treasurer, ...	6,000.00	
Secretary of the University, ...	2,500.00	
Secretary of the Board of Overseers, ...	200.00	
Bursar, ...	3,000.00	
Bursar's Assistant, ...	1,200.00	
Clerks Treasurer's office, ...	3,800.00	
Superintendent of Buildings, ...	2,400.00	27,107.66
Memorial Hall and Sanders Theatre.		
Insurance, ...	565.71	
Repairs, fuel, gas, &c., ...	737.49	1,303.20
General Expenses.		
Advertising, ...	76.50	
Labor, &c. on grounds outside of College Yard,	2,094.75	
Subscription to Mercantile Agency, ...	300.00	
Watering streets, and water, ...	262.80	
Amounts carried forward, ...	$2,734.05	$36,241.02

TABLE I., CONTINUED.

PAYMENTS

Amounts brought forward, ...	$2,734.05	$36,241.02
General Expenses.		
Watchmen, ...	961.44	
Freight, diplomas, and sundries, ...	438.92	
Printing, ...	292.97	
Music, Commencement, ...	185.00	
Annual Catalogue and Calendar, ...	2,804.50	
Repairs and improvements on President's House,	511.26	
Legal services, ...	20.00	
Gift to Cambridge Firemen's Relief Association,	250.00	
Cases for the Semitic Collection, ...	3,000.00	
Taxes on certain unimproved lands, ...	193.68	11,391.82
		$47,632.84
On account of improvements in Sever Hall, from **Sever** Fund, ...	9,000.00	
Repairs, improvements, etc., on Sacramento St. houses, from **Walter Hastings** Fund, ...	3,010.12	12,010.12
Interest on Advances for University Lands, ...		1,995.21
Fellowships.		
John Parker, ...	2,625.00	
Harris, ...	250.00	
John Thornton Kirkland, ...	550.00	
James Walker, ...	500.00	
Rogers, ...	1,875.00	
Morgan, ...	3,000.00	
Robert Treat Paine, ...	500.00	
Ozias Goodwin Memorial, ...	450.00	
Henry Bromfield Rogers Memorial, ...	450.00	
Henry Lee Memorial, ...	450.00	
John Tyndall Scholarship, ...	500.00	11,150.00
Prizes.		
Andrew P. Peabody, ...	200.00	
George B. Sohier, ...	250.00	
John O. Sargent, ...	100.00	550.00
		$73,338.17

TABLE No. II.

THE COLLEGE.

RECEIPTS.

From Term Bills.		
Instruction, ...	$208,140.00	
Rents available for general expenses, ...	52,447.33	260,587.33
Income of Scholarship Funds.		
Abbot, ...	175.46	
Alford (accumulating), ...	55.72	
Amounts carried forward,	$231.18	$260,587.33

TABLE II., CONTINUED.

RECEIPTS.

Amounts brought forward, ...	$231.18	$260,587.33
Bartlett, ...		278.21
Bassett, ...		290.20
Bigelow, ...		613.16
Bowditch, ...		5,635.39
Bright, ½ income of **Bright** Legacy, ...		1,287.50
Browne, ...		180.46
Ruluff Sterling Choate, ...		316.42
Class of 1802, ...		880.22
" **1814,**		151.67
" **1815 (Kirkland),**		285.62
" **1817,**		201.78
" **1828** (accumulating), ...		163.82
" **1835** (accumulating), ...		162.64
" **1841,**		210.89
" **1852 (Dana)** (accumulating), . . .		231.39
" **1856,** from special investment, . . .		600.00
" **1867** (accumulating), ...		158.26
Crowninshield (accumulating), ...		514.33
George and **Martha Derby,**		278.00
Wm. Samuel Eliot, ...		276.19
Farrar, ...		300.50
Richard Augustine Gambrill, ...		518.19
Charles Haven Goodwin, ...		304.43
Greene (accumulating), ...		165.11
Price Greenleaf, ...		3,000.00
Levina Hoar, ...		298.96
Hodges (accumulating), ...		493.58
Hollis, ...		275.06
Henry B. Humphrey, ...		364.77
William Merrick, ...		265.89
Morey, ...		389.65
Pennoyer. Interest, ...	$115.26	
Annuity, ...	171.00	286.26
Perkins (accumulating), ...		167.12
Rodger (accumulating), ...		44.60
Henry Bromfield Rogers, ...		169.54
Edward Russell (accumulating), ...		160.32
Mary & Leverett Saltonstall (accumulating),		298.08
Dorothy Saltonstall (accumulating), ...		49.23
Savage, ...		300.00
Sever, ...		164.39
Sewall, ...		502.69
Shattuck, ...		2,392.33
Slade, ...		295.56
Story (accumulating), ...		172.27
Stoughton (accumulating), ...		60.20
Amounts carried forward, . . .	$23,881.06	$260,587.33

TABLE II., CONTINUED.

RECEIPTS.

Amounts brought forward, ...		$23,881.06	$260,587.83
Gorham Thomas, ...		207.91	
Toppan, ...		358.59	
Townsend, ...		1,259.95	
Walcott, ...		205.38	
Whiting, ...		525.51	26,438.40
Received from the Trustee of the **Thayer** Scholarships,		$3000.00	
" for the **Warren H. Cudworth** "		600.00	
" " " **George Emerson Lowell** "		400.00	
" " " **Matthews** Scholarships (⅛ of net rents of Hall), ...		5,391.33	9,391.33
Other Beneficiary Funds, income of.			
"Exhibitions,"		506.45	
Palfrey "Exhibition,"		92.49	
Samuel Ward. From special investment, . .		50.00	
John Glover (accumulating), ...		82.04	
Quincy Tufts, ...		565.68	
Moses Day, ...		276.45	
Munroe, ...		534.36	
Price Greenleaf Aid, ...		17,139.42	
Scholarship and Beneficiary Money Returned, income, ...	$108.56		
Returned by beneficiaries, . . .	242.00	350.56	19,597.45
Prize Funds, income of.			
Ward Nicholas Boylston Prizes for Elocution,		$209.04	
James Bowdoin Prizes for Dissertations, . .		678.67	
Edward Hopkins Gift for "Deturs."			
From Trustees, ...	$229.30		
Interest on unexpended balance, .	61.75	291.05	
Chauncey Wright, ...		35.12	1,213.88
Funds for Instruction, income of,			
Alford Professorship, ...		$1,429.07	
Boylston "		1,459.36	
Eliot "		1,118.43	
J. Phillips' addition to **Eliot** Professorship,		500.00	
Erving Professorship, ...		180.25	
Fisher "		1,853.54	
Hersey " ⅔ inc. of the Fund,		624.71	
Hollis " (Mathematics), . .		192.97	
Hollis " (Divinity), . . .		1,777.68	
McLean "		2,217.74	
Perkins "		1,081.50	
Plummer "		1,288.53	
Pope "		2,703.75	
Rumford "		2,906.71	
Amounts carried forward, ...		$19,329.24	$317,228.39

TABLE II., CONTINUED.

RECEIPTS.

Amounts brought forward, ...	$19,329.24	$317,228.89
Smith "	1,191.71	
Fund for Permanent Tutors, ...	836.36	
Thos. Lee Fund for the Hersey Professorship,	1,119.82	
Thos. Lee " " **Reading**, ...	813.55	
Class Subscription, ...	7,467.50	
Henry Flynt, ...	16.89	
Paul Dudley Fund, ...	146.26	
Gifts for salaries, ...	950.00	31,871.33
Income of **Jonathan Phillips** unrestricted Fund,	$1,622.25	
" " **John A. Blanchard** " "	54.07	
" " **Daniel H. Pierce** " "	664.33	
" " **J. W. P. Abbot** Fund (accumulating), .	263.73	
" " **John E. Thayer** "	794.03	
" " Fund for Religious Services, ...	53.25	
" " **Gurney** Fund, ...	9,309.81	
" " Classical Publication Fund of the **Class of 1856**, ...	326.82	
" " **Increase Sumner Wheeler** Fund, . . .	2,575.00	
" " **Henry Warren Torrey** Fund, ...	214.60	
" " The **Joseph Lovering** Fund for Physical Research, ...	159.34	16,037.23
Hemenway Gymnasium.		
For use of lockers, ...		2,380.00
Carey Athletic Building.		
Additional gift from **Henry Astor Carey**, . .	800.70	
Interest on unexpended balance, ...	3.63	
For use of lockers, ...	152.00	956.33
Jefferson Physical Laboratory.		
Income from Endowment, ...	3,862.50	
Interest on unexpended balance, ...	20.34	3,882.84
Professor **Cooke's** addition to the University Museum.		
Gifts received, ...	4,100.00	
Interest on unexpended balance, ...	64.73	4,164.73
Sanskrit Department.		
Additional gift from **Henry C. Warren**, . . .		750.00
Geological Department.		
Gift of **Charles Fairchild** for immediate use,	2,500.00	
Interest, ...	15.62	2,515.62
Psychological Laboratory and Library.		
Gifts received, ...	4,300.00	
Interest on unexpended balance, ...	96.77	4,396.77
Amount carried forward, ...		$384,183.24

TABLE II., CONTINUED.

RECEIPTS.

Amount brought forward, ...		$384,183.24
Classical Library.		
Gifts received, ...	6,400.00	
Accrued interest received with subscriptions, .	43.34	
Interest on unexpended balance, ...	54.90	6,498.24
Historical Library.		
Gifts received, ...	1,325.00	
Interest on unexpended balance, ...	12.28	1,337.28
Botanic Garden.		
Income of Fund, ...	2,168.10	
" " **Lowell** Fund, ...	2,944.46	
" " **John L. Russell** Fund, ...	25.75	
Sale of flowers, &c., to Soc. Coll. Instr. of Women,	50.00	
Rent of house, ...	700.00	5,888.31
Botanical Building.		
Interest on unexpended balance, ...		10.11
Herbarium. Income of Fund, ...	1,220.34	
Gifts for present use, ...	3,750.00	
Received from Professor **Gray's** copyrights, .	2,518.23	
Income from **John L. Russell** Fund, ...	77.25	
Sale of duplicate books, ...	88.45	7,654.27
Sundries.		
For use of rooms by College Society, ...	448.01	
Sale of tickets to Commencement Dinner, . . .	687.00	
" " Chemistry and Physics pamphlets, . . .	103.47	
" " old examination papers, ...	319.16	
" " old piano, ...	300.00	
" " Historical Monographs, ...	335.67	
" " grass and wood from College Yard, . .	47.00	
Fees for admission examinations, &c., ...	1,342.00	
Fees for Summer Courses, balance 1890, $421.50		
" " " " 1891, . . . 7,686.00	8,107.50	
Laboratory fees received.		
Chemical, ... $6,274.63		
Physical, ... 1,823.50		
Natural History, ... 1,972.50	10,070.63	
Gifts for books for class-room libraries, ...	223.00	
Gift for apparatus, &c. for Greek Department, .	500.00	
" " " for Historical Department, .	150.00	22,633.44
Total receipts, ...		$428,204.89

PAYMENTS.

Paid the incumbents of the following Scholarships.	
Abbot, ...	$150.00
Bartlett, ...	250.00
Bassett, ...	260.00
Bigelow, ...	583.34
Amount carried forward, ...	$1,243.34

TABLE II., CONTINUED.

PAYMENTS.

Amount brought forward,	$1,248.34	
Bowditch,	5,500.00	
Bright,	1,250.00	
Browne,	150.00	
Ruluff Sterling Choate,	300.00	
Warren H. Cudworth,	600.00	
Class of 1802,	200.00	
" 1814,	150.00	
" 1815 (Kirkland),	200.00	
" 1817,	150.00	
" 1841,	200.00	
" 1856,	600.00	
George and Martha Derby,	250.00	
Wm. Samuel Eliot,	250.00	
Farrar,	300.00	
Richard Augustine Gambrill,	400.00	
Charles Haven Goodwin,	300.00	
Price Greenleaf,	3,000.00	
Levina Hoar,	250.00	
Hollis,	200.00	
Henry B. Humphrey,	225.00	
George Emerson Lowell,	400.00	
Matthews,	4,500.00	
William Merrick,	200.00	
Morey,	300.00	
Pennoyer,	270.00	
Henry Bromfield Rogers,	150.00	
Savage,	300.00	
Sever,	150.00	
Sewall,	400.00	
Shattuck,	2,016.67	
Slade,	333.34	
Thayer,	3,000.00	
Gorham Thomas,	200.00	
Toppan,	300.00	
Townsend,	1,116.66	
Walcott,	100.00	
Whiting,	500.00	$29,955.01
Paid other Beneficiaries from the following Funds.		
Exhibitions,	505.64	
Palfrey Exhibition,	90.00	
Samuel Ward,	50.00	
Quincy Tufts,	541.00	
Day Fund,	264.17	
Munroe Fund,	512.00	
Price Greenleaf Aid,	20,929.97	
Scholarship and Beneficiary Money Returned,	55.95	22,948.73
Amount carried forward,		$52,903.74

TABLE II., CONTINUED.

PAYMENTS.

Amount brought forward, ...		$52,903.74
Prizes. **Boylston** Prizes for Elocution, ...	255.00	
Bowdoin Prizes for Dissertations, ...	625.00	
"Deturs" from **Hopkins** Donation, ...	255.32	1,135.32
Hemenway Gymnasium.		
Salaries and wages, ...	5,720.00	
Janitors and cleaning, ...	1,363.63	
Fuel, water, gas, and sundries, ...	1,542.79	
Repairs and improvements, ...	290.04	
Apparatus, ...	354.05	
Photographing, ...	150.00	
	9,420.51	
Less amount received from other Departments,	1,534.49	7,886.02
Carey Athletic Building.		
Construction account, ...	351.27	
Janitors and cleaning, ...	569.96	
Fuel, water, gas, and sundries, ...	380.81	1,302.04
Jefferson Physical Laboratory.		
Insurance, ...	100.00	
Spent on building and fixtures, ...	334.27	
Laboratory expenses, ... $3,122.85		
Less part paid by the College, . . . 600.00	2,522.85	2,957.12
John E. Thayer Fund.		
Expenses of Quarterly Journal of Economics, . .		598.22
Henry Warren Torrey Fund.		
Printing Harvard Historical Monographs (part), .		123.00
Classical Publication Fund of the **Class of 1856.**		
Printing Studies in Classical Philology, ...		300.00
Sanskrit Department.		
Printing Harvard Oriental Series, ...		399.64
Psychological Laboratory and Library.		
Paid for apparatus, books, &c., ...		1,910.89
Professor **Cooke's** addition to the University Museum.		
Paid on account of construction, &c., ...		10,366.61
Salaries for instruction, ...		198,627.29
Payments for College Edifices not valued on Treasurer's books.		
Repairs and improvements, &c., ...		12,322.34
Botanic Garden, for salaries, labor, repairs, materials, &c.,		8,224.39
Botanical Building.		
Paid on account of construction, &c., ...		9,798.12
Herbarium, for salaries, labor, repairs, materials, &c., .		6,329.84
Amount carried forward, ...		$315,184.58

TABLE II., CONTINUED.

PAYMENTS.

Amount brought forward, ...			$315,184.58
Summer Schools.			
Salaries, ...		$4,237.00	
Clerical services, ...		418.00	
Supplies, materials, &c., ...		944.46	
Printing, ...		127.00	5,726.46
Paid from gifts for Books for Political Economy Dept.,		83.95	
" " " " Music "		199.68	
" " " " French "		15.08	
" " " " Mathematical "		57.58	
" " " " German "		80.12	
" " " " Social Questions,		81.02	
" " " " Classical Library,		3,705.16	
" " " " Historical "		772.02	4,994.61
gift of **N. C. Nash** for Greek Department, .		500.00	
" " **John T. Morse**, Jr., for Historical apparatus, ...		137.45	637.45
General Expenses.			
Appropriations for collections and laboratories.			
Physical Apparatus (Prof. Trowbridge),	$1,000.00		
Mineralogy and Chemistry (Prof. Cooke),	800.00		
Botany (Prof. Goodale), ...	250.00		
Botany (Prof. Farlow), ...	350.00		
Geology (Prof. Shaler), ...	400.00		
Zoölogy (Prof. Mark), ...	250.00		
Psychology (Prof. James), ...	100.00		
Fine Arts (Prof. Norton), ...	200.00		
Geography (Prof. Davis), ...	100.00		
Petrography (Instructor Wolff), . . .	50.00		
Drawing (Instructor Moore), ...	150.00		
Laboratory fees appropriated, . . .	10,070.63		
Fuel and service in Nat. Hist. Labor's,	1,500.00		
Furniture and fittings for the Geological Section of the Museum, ...	1,500.00	16,720.63	
Jefferson Physical Laboratory.			
Expenses paid by the College, ...		600.00	
Appleton Chapel.			
Preaching and morning services,	3,315.00		
Organist and Choir-master, . . .	1,400.00		
Choir, ...	1,400.00		
Books, hymnals, and music, . .	199.19		
Fuel, gas, cleaning, &c., ...	1,096.09		
Services and wages, ...	153.75	7,564.08	
Admission examinations, ...	1,375.41		
Advertising, ...	75.00		
Amounts carried forward,	$1,450.41	$24,884.66	$326,543.10

TABLE II., CONTINUED.

PAYMENTS.

Amounts brought forward,	$1,450.41	$24,884.66	$326,543.10
General Expenses.			
Cleaning and care of College buildings not valued on Treasurer's books,	11,606.14		
College Yard expenses, labor, material, &c.,	3,982.76		
Commencement Dinner,	529.88		
Deans and Chairmen Committees, salaries, clerical and office expenses,	10,967.30		
Fuel, &c.,	5,476.91		
Furniture,	2,719.57		
Freight, diplomas, and sundries,	1,508.06		
Gas,	2,360.44		
Music, Class-Day,	125.00		
Pews hired in Cambridge churches,	1,140.00		
Printing office, expenses, $14,764.55			
Less amount rec'd from other Departments, 8,573.16	6,191.39		
Printing,	1,085.02		
Services of examiners and proctors,	5,271.36		
" " assistants to instructors,	1,366.49		
" " undergraduates,	565.01		
Assistant in Geological Library,	250.00		
Supplies, tools, and materials,	738.43		
Watchmen,	614.50		
Water rates,	438.75	58,387.42	83,272.08
Total payments,			$409,815.18

TABLE No. III.

THE LIBRARY.

RECEIPTS.

Income of the following Funds for the purchase of books.		
Subscription for Library,		$544.25
Nathaniel I. Bowditch,		109.13
Bright, ½ income of the **Bright** Legacy, $1,287.50		
Interest on balance, 5.82		1,293.32
Constantius, ½ of income for the purchase of books,		669.61
Denny,		273.26
Eliza Farrar,		280.57
Horace A. Haven,		161.50
Francis B. Hayes,		519.84
George Hayward,		271.25
Amount carried forward,		$4,122.73

TABLE III., CONTINUED.

RECEIPTS.

Amount brought forward,		$4,122.73	
Thomas Hollis,		123.50	
Sidney Homer,		108.41	
Frederick A. Lane,		273.52	
Lowell,		1,156.43	
Charles Minot. From special investm't,	$4,200.00		
Interest on unexpended balance,	2.11	4,202.11	
Lucy Osgood,		368.89	
Mary Osgood,		360.19	
Stephen Salisbury,		275.47	
Sever,		1,034.79	
Samuel Shapleigh,		212.08	
Charles Sumner,		1,931.71	
Ichabod Tucker. From special investm't,	$200.00		
Interest on unexpended balance,	2.42	202.42	
George W. Wales. Gift,	200.00		
Interest on unexpended balance,	10.09	210.09	
James Walker,		820.76	
Thomas W. Ward,		272.90	
Executors of **Robert Waterston.**			
Interest on unexpended balance,		29.97	
J. Huntington Wolcott,		64.37	$15,770.34
Gift from Dante Society,		74.25	
Sale of duplicates, &c.,		8.52	82.77
James Savage Fund for general expenses (⅓ of income),		1,397.25	
Constantius " " " ½ " "		669.60	
Daniel Treadwell " " "		544.46	
Daniel Austin " " "		320.84	
Eben Wright " " "		5,150.00	
Jarvis " " "		25.75	
Price Greenleaf " " "		17,139.42	25,247.32
Fees for use of Library,		220.00	
Sale of Bulletins, &c.,		26.40	246.40
			$41,346.83

PAYMENTS.

For Books from		
Subscription Fund,	$541.82	
Bowditch "	105.62	
Bright "	1,163.07	
Constantius "	697.09	
Denny "	278.28	
Farrar "	418.62	
Haven "	154.72	
Hayes "	528.14	
Hayward "	259.33	
Amount carried forward,	$4,146.69	

Table III., continued.

PAYMENTS.

Amount brought forward,	$4,146.69	
Hollis Fund,	129.40	
Homer "	97.93	
Lane "	267.62	
Lowell "	610.72	
Minot "	3,074.54	
Lucy Osgood "	382.50	
Mary Osgood "	336.95	
Salisbury "	139.25	
Sever "	995.14	
Shapleigh "	243.32	
Sumner "	1,851.68	
Tucker "	247.32	
Wales Gift,	157.42	
Walker Fund,	765.04	
Ward "	265.69	
Waterston Gift,	63.19	
Furness "	47.40	
Dante Society money,	67.89	
Duplicate money,	1.75	
Subscription of 1880,	13.89	$13,905.33
Salaries and wages,	20,997.07	
Binding,	1,578.71	
Stationery, postage, supplies, &c.,	637.57	
Fuel,	1,023.70	
Repairs and improvements,	265.28	
Freight, water, and sundries,	265.68	
Janitors and cleaning,	1,092.18	
Furniture,	212.40	
Bulletins, and other printing,	1,926.95	27,999.54
		$41,904.87

Table No. IV.

DIVINITY SCHOOL.

RECEIPTS.

Income of the following Funds applicable to Salaries.

Divinity School, balance,	$1,411.25
Benjamin Bussey Professorship,	1,935.58
Parkman Professorship,	824.82
John Hancock Professorship,	309.41
Winn Professorship of Ecclesiastical History,	2,489.82
Samuel Dexter,	1,044.42
Henry Lienow,	473.03
Mary P. Townsend,	270.37
Amount carried forward,	$8,758.70

TABLE IV., CONTINUED.

RECEIPTS.

Amount brought forward,		$8,758.70	
Winthrop Ward,		108.15	
Samuel Hoar,		54.07	
Abraham W. Fuller,		54.07	
Caroline Merriam,		54.07	
Joseph Baker,		405.56	
Thomas Tileston of New York Endowment,		2,060.00	
Oliver Ames,		875.50	
Henry P. Kidder,		515.00	
Abby Crocker Richmond,		51.50	
New Endowment,		3,678.49	
William B. Spooner Legacy.			
Interest received from Trustees,	$333.33		
Income of Fund,	300.40	633.73	$17,248.84
Income of Scholarship Funds.			
Jackson Foundation,		724.66	
Thomas Cary,		264.66	
George Chapman,		125.61	
Joshua Clapp,		206.05	
J. Henry Kendall,		281.40	
Nancy Kendall,		165.42	1,767.80
Income of other Funds.			
Joshua Clapp,		112.17	
William Pomroy,		54.07	
Hannah C. Andrews,		27.04	
Lewis Gould,		46.92	
Daniel Austin,		45.83	
Abner W. Buttrick,		665.59	
Adams Ayer,		51.50	
John W. Quinby,		66.74	
John L. Russell,		51.50	
Interest on Beneficiary money returned,		129.37	1,250.73
Benjamin Bussey Trust (⅛ of net income for use of this School),			3,917.12
Gift from Society for Promoting Theological Education,			1,500.00
Sale of duplicate books, &c.,			30.50
Term Bills.			
For instruction,		2,474.38	
For rents,		2,920.00	5,394.38
			$31,109.37

PAYMENTS.

For Salaries for instruction,	$20,022.32	
Services and wages,	1,975.31	
Labor, repairs, and improvements,	1,371.72	
Cleaning and care of rooms,	1,414.86	
Amount carried forward,		$24,784.21

TABLE IV., CONTINUED.

PAYMENTS.

Amount brought forward, ...	$24,784.21	
Books and binding, ...	500.07	
Printing, ...	55.50	
Fuel, gas, and water, ...	667.90	
Stationery, postage, diplomas, and sundries, . . .	140.19	
Collation, ...	75.00	
Furniture, ...	43.38	
Proportion of expenses of Gymnasium, ...	154.20	
Advertising, ...	97.10	$26,517.55
Paid the incumbents of the following Scholarships.		
Jackson Foundation, ...	693.34	
Thomas Cary, ...	240.00	
George Chapman, ...	100.00	
Joshua Clapp, ...	125.00	
Nancy Kendall, ...	140.00	
J. Henry Kendall, ...	140.00	1,438.34
Paid beneficiaries from the following Funds:		
Abner W. Buttrick, ...	600.00	
William Pomroy, ...	51.87	651.87
		$28,607.76

TABLE No. V.

LAW SCHOOL.

RECEIPTS.

Income of the following Funds.		
Law School, balance, ...	$1,675.45	
Nathan Dane Professorship, ...	811.12	
Benjamin Bussey "	1,234.97	
Isaac Royall "	429.56	
New Professorship, ...	4,892.24	
Law School Book Fund, ...	2,282.12	
Benjamin Bussey Trust (¼ of net income for use of this School), ...	3,917.12	
John Foster, income for Law Students every second year, ...	163.36	$15,405.94
Term Bills.		
For instruction, ...		40,450.00
Anonymous gift for instruction in the Peculiarities of Massachusetts Law, ...		1,000.00
Sale of duplicate books, &c., ...		12.40
Repayment of Scholarship money with interest, ...		170.00
		$57,038.34

PAYMENTS.

For Salaries for instruction, ...	$29,870.00	
Librarian and Assistants, ...	4,060.30	
Amount carried forward, ...	$33,930.30	

TABLE V., CONTINUED.

PAYMENTS.

Amount brought forward, ...	$33,980.30	
Janitors, cleaning, &c., ...	1,068.80	
Books and binding, ...	4,003.75	
Fuel, ...	825.37	
Gas, ...	698.70	
Printing	425.25	
Scholarships, ...	1,350.00	
Labor, repairs, and improvements, ...	727.51	
Stationery and postage, ...	260.11	
Freight, diplomas, and sundries, ...	869.20	
Water rates, ...	93.90	
Furniture, ...	454.17	
Services of examiners and proctors, ...	96.08	
Proportion of expenses of Gymnasium, ...	1,049.32	
Insurance, ...	50.00	$45,402.46

TABLE No. VI.

MEDICAL SCHOOL.

RECEIPTS.

Income of the following Funds.

Medical School, balance, ...	$2,946.47	
Jackson, ...	988.44	
Warren, for Anatomical Museum, ...	676.81	
Ward Nicholas Boylston, for Medical Prizes, .	171.03	
Ward Nicholas Boylston, for Medical Books,	176.03	
George C. Shattuck, ...	882.14	
Hersey Professorship, ⅔ income of the fund, . .	416.47	
Medical Library Fund.	104.39	
Quincy Tufts, ...	103.00	
David Williams Cheever Scholarship, ...	267.89	
George Cheyne Shattuck Memorial Fellowship,	64.37	
John Ware " "	64.37	
Charles Eliot Ware " "	64.37	
Edward M. Barringer, ...	1,313.92	
Henry Harris, ¼ of income, ...	770.93	
Mary W. Swett, ...	811.89	
Samuel W. Swett, ...	1,030.00	
Samuel E. Fitz, ...	94.55	
Ellis Gift, ...	18.42	
J. Ingersoll Bowditch, ...	317.91	
New subscription, ...	1,160.91	
Henry F. Sears' gift for addition to Medical School.		
Interest on balance, ...	224.73	$12,668.54
Gifts for present use, ...		1,070.00
Amount carried forward, ...		$13,738.54

TABLE VI., CONTINUED.

RECEIPTS.

Amount brought forward, ...		$13,738.54
Term Bills.		
For instruction, ...	$63,684.08	
For graduation fees, ...	2,100.00	
In Chemical Laboratory, breakage and chemicals,	1,022.25	
In Practical Anatomy, for use of material, . . .	690.00	
For extra examination fees, ...	119.00	67,615.33
From Dental and Veterinary Schools for Laboratory instruction, ...		483.00
Repayment of advances for the purchase of microscopes,		200.00
Use of lecture room by Medical Society, ...		60.00
		$82,096.87

PAYMENTS.

Boylston Medical Prizes.		
Advertising, ...		$52.00
Warren Anatomical Museum.		
Expenses and additions to collection, ...		310.67
Edward M. Barringer Scholarship No. 1, .	$300.00	
" " 2, .	200.00	500.00
David Williams Cheever Scholarship, ...	200.00	
Faculty Scholarships, ...	800.00	
Beneficiaries from **Foster** income, ...	125.00	1,625.00
J. Ingersoll Bowditch Fund.		
Physiological apparatus, &c., ...		228.68
Ellis Gift.		
Expenses in Physiological Laboratory, ...		204.31
Chemical Laboratory, ...	1,025.59	
Physiological Laboratory, ...	400.00	
Anatomy, ...	1,750.00	
Pathological Laboratory, ...	100.00	
Bacteriological Laboratory, ...	400.00	
Obstetrics, ...	300.00	
Histology and Embryology, ...	300.00	
Materia Medica, ...	50.00	
Bandaging and apparatus, ...	100.00	
Hygiene, ...	50.00	
Salaries for instruction, ...	49,051.00	
Repairs and improvements, ...	495.14	
Microscopes, ...	723.00	54,744.73
Henry F. Sears' gift for new addition.		
Paid on account of construction, &c., ...		27,531.00
Graduates courses, fees repaid to Instructors, ...	2,143.50	
Summer " " " " "	1,425.00	3,568.50
General Expenses.		
Advertising and catalogues, ...	1,000.00	
Books, from Library Fund, ...	249.89	
Amounts carried forward, ...	$1,249.89	$88,264.89

Table VI., continued.

PAYMENTS.

Amounts brought forward, ...	$1,249.89	$88,264.89
General Expenses.		
Fuel, ...	1,955.46	
Gas, ...	952.38	
Insurance, ...	197.50	
Printing, ...	315.50	
Services and wages, ...	2,916.17	
Stationery and postage, ...	294.02	
Water rates, ...	566.40	
Furniture, ...	295.35	
Janitors and cleaning, ...	3,562.57	
Freight, diplomas, and sundries, ...	308.58	
Supplies, tools, and material, ...	338.84	12,952.66
		$101,217.55

Table No. VII.

DENTAL SCHOOL.

RECEIPTS.

Income of the following Funds.		
Dental School, balance, ...	$6.13	
Endowment, ...	480.65	$486.78
Term Bills, for instruction, ...		7,040.00
Fees from Infirmary, ...	3,058.92	
" " Laboratory, ...	1,646.88	4,705.80
Gifts for present use, ...		135.00
		$12,367.58

PAYMENTS.

Advertising and catalogues, ...	$404.53	
Care of rooms and cleaning, ...	1,171.36	
Freight, diplomas, &c., ...	145.61	
Fuel, ...	247.76	
Gas, ...	143.13	
Supplies, apparatus, &c., ...	1,608.46	
Furniture, ...	91.00	
Repairs and improvements, ...	144.94	
Salaries for instruction, ...	4,150.00	
Stationery and postage, ...	74.25	
Water rates, ...	161.40	
Medical School, for Laboratory instruction, ...	327.00	$8,669.44

Table No. VIII.

LAWRENCE SCIENTIFIC SCHOOL, AND MUSEUM OF COMPARATIVE ZOÖLOGY.

RECEIPTS.

Income of the following Funds.			
Lawrence Scientific School, balance		$271.15	
Professorship of Engineering,		1,998.56	
Abbott Lawrence,		3,169.10	
James Lawrence,		2,594.31	
John B. Barringer,		1,580.38	
Gray Fund for Zoölogical Museum,		2,575.00	
Sturgis Hooper,		5,150.00	
Agassiz Memorial. Interest,	$13,994.20		
From special investment,	1,315.20	15,309.40	
Teachers and Pupils,		391.09	
Humboldt,		398.66	
Permanent Fund for Museum of Zoölogy,		6,049.65	$39,487.30
Gift of Mrs. **Benjamin S. Rotch** to build and equip an electrical engineering workshop,		10,000.00	
Interest,		8.33	
			10,008.33
Term Bills, for instruction,			13,551.50
			$63,047.13

PAYMENTS.

Paid on the order of the Faculty of the Museum of Comparative Zoölogy, from the following Funds.			
Gray,		$2,575.00	
Agassiz Memorial, general expenses,		13,622.55	
Agassiz Memorial, advances repaid,		1,686.85	
Teachers and Pupils,		391.09	
Humboldt,		398.66	
Permanent,		6,049.65	
Sturgis Hooper, Professor of Geology,		5,190.00	$29,913.80
Salaries for instruction,		16,609.10	
Instruments and apparatus,		574.37	
Books, Engineering Department,		100.00	
Books and binding,		249.97	
Printing,		109.25	
Fuel,		319.14	
Gas, water, freight, and sundries,		64.45	
Janitor and cleaning,		311.00	
Labor and repairs,		297.65	
Expenses Chemical Laboratory (part of),		132.53	
Scholarships,		1,150.00	
Proportion of expenses of Gymnasium,		330.97	
Furniture,		337.75	
Advertising,		254.26	20,840.44
			$50,754.24

Table No. IX.

OBSERVATORY.

RECEIPTS.

Income of the following Funds.		
Edward B. Phillips,	5,680.14	
James Hayward,	1,081.50	
Robert Treat Paine,	6,185.66	
Paine Professorship of Practical Astronomy,	2,575.00	
Uriah A. Boyden,	11,744.37	
Augustus Story,	689.07	
David Sears,	1,418.46	
Josiah Quincy,	603.63	
James Savage (¼ of net income),	465.75	
Charlotte Harris,	103.00	
Thomas G. Appleton,	257.50	
J. Ingersoll Bowditch,	128.75	
New Endowment,	2,575.00	$33,507.83
From sale of time signals,	2,933.34	
" " " Observatory publications,	2.00	
" " " grass,	20.00	2,955.34
Mrs. Henry Draper, gift for special research (additional),	10,000.00	
Interest on unexpended balance,	41.20	10,041.20
Miss Catherine W. Bruce's gift for a photographic telescope, interest on unexpended balance,		1,592.59
Subscriptions towards the construction of a fire-proof building,	1,800.00	
Interest on balance,	30.54	1,830.54
		$49,927.50

PAYMENTS.

From **Uriah A. Boyden** Fund, supplies, apparatus, services, &c.,		$28,567.35
" **Draper** Memorial, supplies, apparatus, services, &c.,		9,911.46
" **Bruce** gift for telescope,		1,667.56
" **Josiah Quincy** Fund, printing Observatory public'ns,		889.87
Salaries and wages,	14,859.86	
Cleaning and care of Observatory,	412.00	
Gas,	122.70	
Instruments and apparatus, including repairs on same,	1,446.94	
Repairs and improvements on buildings and grounds,	1,975.91	
Stationery, postage, and telegraphing,	398.65	
Fuel,	124.20	
Books and binding,	473.50	
Water rates,	67.90	
Printing,	2,388.62	
Freight, chemicals, and sundries,	440.90	
Amounts carried forward,	$22,661.18	$41,036.24

Table IX., continued.

PAYMENTS.

Amounts brought forward	$22,661.18	$41,036.24
Furniture,	105.82	
Interest on advances,	69.90	
On account of advances to Observatory real estate repaid,	440.12	
Supplies and materials,	555.20	
Rent of house,	90.00	23,922.22
		$64,958.46

Table No. X.

BUSSEY INSTITUTION.

RECEIPTS.

Interest on unexpended balance,	$458.71	
From **Bussey** Trust (⅓ net income),	7,834.24	
From **Bussey** Building Fund,	31.36	
Fees for instruction,	670.00	
Sale of wood, hay, and sundries,	2,053.19	
Horticultural Department, sale of flowers and plants,	1,586.77	
Board of horses, cattle, &c.,	1,764.69	$14,398.96

PAYMENTS.

For Salaries,	6,100.00	
Books,	27.34	
Fuel for school building,	21.98	
Services and wages,	2,064.77	
Horticultural Department, expenses,	2,032.52	
Repairs and improvements,	171.14	
Grain,	629.71	
Advertising,	58.00	
Horse shoeing,	107.28	
Seeds,	16.61	
Farming tools,	216.12	
Freight, telegrams, weighing hay, &c.,	34.77	$11,480.24

James Arnold Fund.

Receipts.

Income of Fund,	$7,974.77

Payments.

19/20 of income carried to Arnold Arboretum,	$7,576.04

TABLE X., CONTINUED.

Arnold Arboretum.

Receipts.

Income of unexpended balance,	$311.68	
From James Arnold Fund,	7,576.04	
Sale of wood, grass, &c.,	983.95	$8,871.62

Payments.

Salary of Director and Assistant,	$3,500.00	
Expenses of Arboretum, services, labor, &c.,	6,988.70	$10,488.70

TABLE No. XI.

SCHOOL OF VETERINARY MEDICINE.

Receipts.

Term bills, for instruction,	$2,235.00	
" " " graduation fees,	180.00	
" " " extra examinations,	12.00	$2,427.00
Subscribers to Veterinary Hospital,		1,770.00
Fees from Hospital and Forge,		17,015.97
Interest on deposit with New England Trust Co.,		12.71
Gift for immediate use,		10.00
		$21,235.68

Payments.

Salaries and wages,	$11,326.17	
Instruments and apparatus,	159.15	
Rent,	1,280.00	
Hay, grain, supplies, &c.,	4,605.99	
Printing,	50.12	
Stationery, postage, telephone, &c.,	392.21	
Repairs and improvements,	644.52	
Fuel,	275.57	
Water,	38.60	
Gas,	252.46	
Freight, diplomas, and sundries,	177.88	
Taxes,	267.33	
Interest on advances,	1,010.93	
Advertising and catalogues,	231.35	
Medical School for Laboratory instruction,	156.00	
Legal expenses,	87.50	$20,905.78

Table No. XII.

MISCELLANEOUS FUNDS.

Bussey Trust.

Receipts.

Net income from Real Estate,		$21,970.01

Payments.

Annuities,	$6,300.00	
Legal services,	1.53	
One-half of the remaining income to Bussey Institution,	7,834.24	
One-quarter " " " Divinity School,	3,917.12	
" " " " " Law School,	3,917.12	$21,970.01

Gray Fund for Engravings.

Receipts.

Interest on Fund,	$823.85

Payments.

To the Treasurer of the Museum of Fine Arts,	$790.25

Annuity Funds.

Receipts.

Gore, interest,	$1,252.33	
Lucy Osgood, interest,	258.99	
Bemis, interest,	2,612.49	
George William Sawin, income of special investment,	70.00	$4,193.81

Payments.

Gore, annuities,	$607.39	
Lucy Osgood, annuity,	420.00	
Bemis, annuity,	2,550.72	
George William Sawin, annuity,	70.00	$3,648.11

Price Greenleaf Fund.

Receipts.

Income of special investment,	$37,278.84

Payments.

Scholarships,	$3,000.00	
Beneficiary money transferred to College account,	17,139.42	
Balance of income for Library expenses,	17,139.42	$37,278.84

TABLE XII., CONTINUED.

Daniel Williams Fund.

Receipts.

Interest on Fund,	$830.49

Payments.

Treasurer of Mashpee Indians,	$529.54

Sarah Winslow Fund.

Receipts.

Interest on Fund,	$247.35

Payments.

Minister at Tyngsborough, Mass.,	$115.86	
Teacher at " "	115.86	
Commission on income credited to University,	5.94	$237.66

Gifts for Semitic Collection and Library.

Receipts.

From Jacob H. Schiff,	$1,000.00	
Interest on unexpended balance,	221.05	$1,221.05

Payments.

For account of Semitic Collection,	$3,452.85	
" books and binding,	144.89	$3,597.74

Walter Hastings Building Bequest.

Receipts.

Additional amount received from Trustees,	$1,532.10	
Interest on unexpended balance,	16.41	$1,548.51

Payments.

Final payment on account of construction,	$3,728.93

Class Funds.

Receipts.

Class of 1834, income of special investment,	$40.00	
" " 1853, " " " "	121.00	$161.00

Payments.

To Secretary of the Class of 1834,	$40.00	
" " " " " " 1853,	121.00	$161.00

Table XII., continued.

Sundry Accounts.

Receipts.

Gospel Church Fund (accumulating).		
Interest on Fund,	$195.18	
Robert Troup Paine Fund (accumulating).		
From special investment,	1,610.82	
Huntington Frothingham Wolcott Fund.		
Interest on Fund,	64.87	
Advances to Observatory, from general investments,	518.28	
" " Botanical Dept. " " "	6,905.57	
Gains and Losses for General Investments, from Railroad Bond Premiums,	18,590.84	
Stock Account, from University Houses and Lands,	17,873.00	
Insurance and Guaranty Fund, " "	16,500.00	
Joseph Lee Fund, " "	10,000.00	$72,258.06

Payments.

Annuity for **Class of 1802,**	$105.33	
Gurney annuities,	1,000.00	
Advances to School of Veterinary Medicine repaid, in part,	329.90	
Price Greenleaf Fund, loss from change of special investment,	560.00	$1,995.23

GENERAL SUMMARY OF THE TABLES.

			Receipts.	Payments.
Table	I.	University,	$68,585.69	$73,338.17
Table	II.	College,	428,204.89	409,815.18
Table	III.	Library,	41,346.83	41,904.87
Table	IV.	Divinity School,	31,109.37	28,607.76
Table	V.	Law School,	57,038.34	45,402.46
Table	VI.	Medical School,	82,096.87	101,217.55
Table	VII.	Dental School,	12,367.58	8,669.44
Table	VIII.	Lawrence Scientific School and Museum of Comparative Zoölogy,	63,047.13	50,754.24
Table	IX.	Observatory,	49,927.50	64,958.46
Table	X.	Bussey Institution,	14,398.96	11,480.24
		James Arnold Fund,	7,974.77	7,576.04
		Arnold Arboretum,	8,871.62	10,488.70
Table	XI.	School of Veterinary Medicine,	21,235.68	20,905.78
Table	XII.	Bussey Trust,	21,970.01	21,970.01
		Gray Fund for Engravings,	823.85	790.25
		Annuity Funds,	4,193.81	3,648.11
		Price Greenleaf Fund,	37,278.84	37,278.84
		Daniel Williams Fund,	830.49	529.54
		Sarah Winslow Fund,	247.35	237.66
		Fund for Semitic Collection and Library,	1,221.05	3,597.74
		Walter Hastings Building Fund,	1,548.51	3,728.93
		Class Funds,	161.00	161.00
		Sundry Accounts,	72,258.06	1,995.23
			$1,026,738.20	$949,056.20
			949,056.20	
		Balance,	$77,682.00	

Which is the net increase of the Funds and balances, excluding gifts for capital account, as also shown on page 37.

Certificate of the Joint Committee of the Corporation and Overseers of Harvard College, for examining the Books and Accounts of the Treasurer entered in the Journal kept by him.

The undersigned, a joint committee of the Corporation and Overseers of Harvard College to examine the books and accounts of the Treasurer for the year ending July 31, 1891, have, with the assistance of an expert chosen by them, examined and audited the Cash book covering the period from August 1, 1890, to July 31, 1891, inclusive, and have seen that all the bonds, notes, mortgages, certificates of stock, and other evidences of property, which were received by him and on hand at the beginning of said year, are now in his possession, or are fully accounted for by entries made therein; they have also noticed all payments, both of principal and interest, indorsed on any of said bonds or notes, and have seen that the amounts so indorsed have been duly credited to the College.

They have carefully examined all notes, bonds, mortgages, and other securities invested during the said year, and are of opinion that all such investments have been judiciously made.

They have in like manner satisfied themselves that all the entries for moneys expended by the Treasurer, or charged in his books to the College, are well vouched; such of them as are not supported by counter entries being proved by regular vouchers and receipts.

They have also seen that all the entries for said year are duly transferred to the Ledger, and that the accounts there are rightly cast, and the balances carried forward correctly to new accounts.

(Signed,)

JOHN QUINCY ADAMS, } *Committee on the part of the Corporation.*

T. JEFFERSON COOLIDGE,
ROGER WOLCOTT,
ROBERT BACON,
CHARLES HENRY PARKER,
GEORGE B. CHASE,
ISRAEL M. SPELMAN,
JOHN L. GARDNER, } *Committee on the part of the Board of Overseers.*

Boston, January 8, 1892.

ANNUAL REPORTS

OF THE

PRESIDENT AND TREASURER

OF

HARVARD COLLEGE.

1891-92.

CAMBRIDGE, MASS.
PUBLISHED BY THE UNIVERSITY.
1893.

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PRESIDENT'S REPORT FOR 1891-92.

To the Board of Overseers: —

The President of the University has the honor to submit the following Report for the academic year 1891–92; namely, from Oct. 1st, 1891, to Sept. 29th 1892: —

John Osborne Sargent, a member of the Board of Overseers, died in New York on December 28th, 1891, in the eighty-first year of his age. Mr. Sargent was first elected to the Board of Overseers in 1880, and had nearly completed a second term of service. He took his degree of Bachelor of Arts in the year 1830 under the liberal administration of President Quincy, and was a firm believer in the elective system, first introduced into the College during that administration. His personal tastes directed him towards letters and poetry, and he was especially devoted to Latin Literature; but his sympathies embraced all scholarly and scientific pursuits, and he supported every measure which promoted a just academic freedom and recognized the educational equality of all liberal arts. In spite of his interest in the Latin language, he was much opposed to the continued use of Latin in University diplomas and ceremonies, and in the Quinquennial Catalogue; and was the leader in the Board of Overseers of the movement which resulted in the substitution of English for Latin in that Catalogue. During the later years of his life he annually provided a prize of $100 for the best metrical version of some ode of Horace; and since his death this annual gift has been converted into a permanent endowment. He directed that this prize should be open to young women as well as to young men; and it gave him pleasure when it was more than once carried off by young women who were studying in Cambridge under the direction of the Society for the Collegiate Instruction of Women.

Professor Joseph Lovering died in Cambridge on the 18th of January, 1892, in the seventy-ninth year of his age. He was

first appointed an Instructor in mathematics in Harvard College in the year 1835, having previously studied Divinity for two years; and from that post he was promoted in 1838 to the Hollis Professorship of Mathematics and Natural Philosophy. This Professorship he held for fifty years. During this long period his department moved from Harvard Hall to University Hall, back again to Harvard Hall, and finally to the Jefferson Physical Laboratory, Professor Lovering personally planning and conducting each one of these removals. He was the first Director of the Jefferson Laboratory, serving in that capacity from 1884 to 1888; and it was a great satisfaction to him in his old age to contemplate the extraordinary development of the study of physics at the University and the parallel increase in the resources of the department. Professor Lovering began his academic career as a convinced believer in a uniform, required curriculum, so that he steadily supported the measures by which, during the years between 1846 and 1860, the elective system, which had been developed in Harvard College during the administration of Quincy, was gradually reduced, and, indeed, well-nigh eliminated; but he became in his later years so firm a believer in the principle of election of studies that he positively refused to give the course of elementary, illustrated lectures on physics to the Freshman Class, unless the Faculty would first repeal the existing requirement that the whole class should attend the course. Professor Lovering also served the College as Regent for thirteen years, from 1857 to 1870, and discharged the administrative and clerical duties of the office with perfect patience and fidelity. He was punctual, exact and orderly in all his work; and although he entered upon his professorship at twenty-five years of age with what would now be regarded as very inadequate preparation, he became one of the clearest and most successful lecturers in the University. He was a frequent contributor to the Proceedings of the American Academy of Arts and Sciences, and he served for many years in the active administration both of that Academy and of the American Association for the Advancement of Science.

Dr. Sereno Watson, Curator of the Herbarium, died in Cambridge on the 9th of March, 1892, in the sixty-sixth year

of his age. He graduated at Yale College in 1847, but did not settle to the main work of his life till twenty years later, when, in the summer of 1867, he became Botanist to the Geological Survey of the Fortieth Parallel. From that time on he was wholly devoted to the study of systematic botany. His first publications related to the botany of the region surveyed by that expedition. They appeared in 1871, and from that date his contributions to American botany were numerous and valuable. He made his home from the year 1870 at the Herbarium of this University, so that most of his scientific work was done there. In 1874 he was made Curator of the Herbarium while Professor Asa Gray was its Director, and after the death of Dr. Gray in 1888, Dr. Watson had entire charge of the collection. At the time of his death he was engaged on the continuation of the Synoptical Flora of North America which Dr. Gray had left unfinished. As a botanist he was learned, accurate, conservative, and independent — as a man, modest, silent, self-denying, methodical, and constant in labor.

Lists of the resignations and appointments of the year will be found in the Appendix (pp. 213–220).

Dr. Frederick Irving Knight resigned the Professorship of Laryngology at the end of the year 1891–92, to the regret of the Governing Boards and of the Medical Faculty. He was first connected with the Medical School as a Lecturer in 1870–71, then as an Instructor in auscultation and percussion from 1872 to 1882, when he was made Assistant Professor of laryngology. In 1888 he was promoted to a clinical professorship of laryngology. Through all these years Dr. Knight rendered invaluable service to the Medical School, and particularly to the department he represented.

Two preachers to the University retired at the end of the academic year, — the Rev. Brooke Hereford, D.D., and the Rev. Henry Van Dyke, D.D., both after having served the University for two years with great acceptance. The preachers selected to fill the two vacancies in the Board were, — the Rev. E. Winchester Donald, D.D., of New York, and the Rev. Washington Gladden, D.D., of Columbus, Ohio; the first is an Episcopalian, the second a Congregationalist.

Since the beginning of the year 1888–89 the number of students in the University has increased by 1067. The following table exhibits the parallel increase in the number of teachers:

	1888–89.	1889–90.	1890–91.	1891–92.	1892–93.
Professors	69	69	71	*69	†78
Associate Professors	1	2	2	3	4
Assistant Professors	20	21	22	26	28
Lecturers	4	5	9	13	10
Tutors	3	1	3	2	2
Instructors	67	72	79	91	100
Demonstrators and Assistants	34	47	56	47	68
Whole number of teachers	198	217	242	251	294
Whole number of students	1899	2079	2271	2658	2966

A glance at the table shows that the additional instruction has been provided mainly by increasing the number of instructors, demonstrators and assistants, although the increase in the number of assistant professors has been considerable, and eight new professorships were established during the academic year now under review. The proportion of teachers to students has slightly diminished; but there is still one teacher to every ten students. During the academic year 1891–92 this proportion was a little smaller; because the large increase in the number of students in that year (387) was unexpected, and it was impossible to meet satisfactorily the sudden demand. Fortunately the number of teachers had been increased considerably in the year 1890–91. The assistants are generally young men who have lately taken degrees with distinction in the departments in which they serve. The instructors and demonstrators are on the average older men, some of them being quite as old as the average assistant professor. None of them are very recent graduates, and all of them are men whose education has been prolonged in the Graduate School, in the professional schools, or in European universities.

* The professorships of Theory and Practice of Physic and of Engineering were vacant this year.

† The two professorships vacant in 1891–92 were filled; the professorship of Laryngology was vacated; and eight new professorships were created.

Of the eight new professorships created in 1891–92, five were filled by promoting members of the staff, and three by inviting professors from other universities. Four of these eight professorships were in the Faculty of Arts and Sciences, two in the Medical Faculty, one in the Law Faculty, and one in the Faculty of Veterinary Medicine.

The teachers of the University are divisible into three classes, — professors and associate professors, with whom the Corporation has entered into relations which are assumed to be permanent; assistant professors and tutors who are appointed for terms of five years and three years respectively; and lecturers, instructors, demonstrators, and assistants, whose connection with the University in these positions may naturally be, and ordinarily is, but temporary. The latter class generally hold appointments for only one year, although there are a few instructors who hold appointments without limit of time. Since a considerable proportion of the total expenditure for teachers' salaries goes to persons whose appointments are annual, it is obvious that the outlay of the University for teaching could be somewhat reduced within a year in case of diminution in the number of students. In 1891–92 the amount paid to lecturers, instructors, demonstrators, and assistants taken together was $92,450, while the amount paid to professors, associate professors, assistant professors, and tutors was $278,300. Thus a quarter of the total expenditure for teachers' salaries was in that year paid for the services of persons holding annual appointments.

During the year seven universities and colleges made ineffectual efforts to draw teachers of this University into their service. Four professors, four assistant professors, and six instructors declined offers of higher pay and higher titles at other institutions. In no one of these cases were the Corporation able to promise the gentleman concerned so much salary at Harvard as he was offered elsewhere. Recognizing that this competition for desirable teachers will prove stimulating to the profession and liberalizing for the colleges and universities, the Corporation nevertheless feel satisfaction that the University was able to retain its teachers. The influences which bind its teachers to the University are chiefly these: —

The dignity and stability of the institution; the perfect liberty of opinion; the freedom in teaching — every teacher teaching as he thinks best, except as the more experienced teachers may persuade and inform the less experienced; the great resources of the University in books and collections and the fact that any teacher can at any time cause books desirable in his department to be bought by the Library; the separation of Cambridge from the luxurious society of great cities; the propinquity to the resources of Boston for the gratification of aesthetic and musical tastes; the healthfulness of Cambridge, and the facilities for bringing up children in a wholesome way, both physically and mentally; and lastly, the consideration which learning and high character traditionally enjoy in eastern Massachusetts, independent of pecuniary condition.

It must not be imagined, however, that an institution which has only 82 professorships against 212 appointments of lower grade expects to retain and promote any considerable proportion of the gentlemen who from year to year hold annual appointments. Accordingly, although the extraordinary growth of the University has caused an abnormal number of promotions of late years, there has also been a steady outflow of young instructors and assistants into other institutions and occupations; and this process is at once inevitable and desirable.

The events of the year set many university teachers to considering the various grounds on which men are valued for university service by Trustees or Faculties. There seem to be three main considerations which affect the exchangeable value of a professor's services. The first is the success of his regular teaching, or, in other words, the success with which he gives instruction from six to ten hours a week during term time. The second consideration is his capacity for usefulness outside of this regular teaching, as, for example, in administrative work, scientific investigation, literary production, or in the varied activities which give social or public influence. The third is the length of his service. In estimating the value of a university officer there are often other considerations also, less tangible or perhaps even indescribable, but still of appreciable and sometimes decisive influence, — such as temperament, bearing, manners, tact and humor.

The University is gradually approaching a condition in which its various degrees will be satisfactorily coördinated; so that candidates for a superior degree will be required to have already attained some appropriate inferior degree. It has been an unfortunate but unavoidable anomaly in the structure of all American universities that the professional degrees were open to persons who had never taken either the degree of Bachelor of Arts or the degree of Bachelor of Science or Philosophy. Indeed, until within recent years, the American professional schools were open to persons who were not known to have received any preliminary education whatever, except that custom rather than regulation prescribed that in some theological schools the students should, as a rule, be Bachelors of Arts. It was a great improvement on this state of things when admission examinations were established in professional schools. All the professional schools of Harvard University have maintained for several years past respectable examinations for admission, and there is a constant tendency to raise the standard of these examinations. Thus, from and after June, 1893, the Law School will demand a knowledge of both Latin and French, instead of either Latin or French, of all candidates for admission who do not hold a Bachelor's degree in Arts or Science, whether they intend to be candidates for the degree of Bachelor of Laws or not. From the same date the Medical School will demand Chemistry as an additional subject for admission. Although such new requirements sometimes check for a time the growth of a School, experience shows that this effect is but temporary, and that young men who are in earnest soon learn to meet the new demands on them. Every improvement in the admission examination of a professional school hastens the time when the school can require for admission a Bachelor's degree. Already no person can be admitted to the Divinity School or to the Graduate School as a candidate for a degree who does not already hold a Bachelor's degree. Already in the Law School about two-thirds of the members of the entering class are usually graduates of colleges or scientific schools; and the increased size and financial prosperity of this School suggest that it is practicable at any time, with due notice, to require a

Bachelor's degree in Arts or Science for admission. In 1891–92 the Law School could have spared all its students who held no degree in arts, letters, or science, and still have had a favorable balance of receipts over expenses.

Professional schools which admit persons who do not hold the Bachelor's degree in Arts or Science fail to support, as they should, the colleges and scientific schools below them; just as a college, whose requirements for admission are lax, fails to support the secondary schools; or just as an academy, whose requirements for admission are not beyond the capacity of a boy of nine years of age, fails to support, as it should, the grammar schools of the region from which it draws its pupils. Lax conditions of admission to any higher grade of education always depress and injure the lower grades, beside causing the class in the higher grade to be less homogeneous and less capable than it should be. The lower grades are injured for every pupil in them, although the proportion of their pupils who normally advance to the higher grade may be small. The mischief is therefore wide-spread, whenever admission can be obtained to a higher grade without passing through the lower. In a rude, pioneer condition of society such mischiefs are perhaps unavoidable; but there are plain indications that American society, at least in the older states, has passed that stage. If notice should now be given that in 1898 and thereafter a bachelor's degree in arts or science would be required for admission to any professional school, parents of boys intended for some one of the learned or scientific professions would make their plans accordingly. The one great obstacle to bringing about the perfect organization of Harvard University in respect to the coördination of degrees is the exaggerated age at which the degrees of Bachelor of Arts and Bachelor of Science or Philosophy are ordinarily attained.

Within a few years there is a noticeable change in regard to the average period of residence of students registered with the Faculty of Arts and Sciences and with the Divinity Faculty, — the average period of residence has distinctly diminished. The evidences of this change are as follows: In the Graduate School it is a common practice for students who come from other colleges to remain but one year, and only a small

proportion of all the students remain more than two years. Since the year 1888–89 nearly one-third of all the students in the Divinity School have been graduates in Divinity, and these graduates seldom remain more than one year. Again, prior to the year 1889–90 the Senior Class in Harvard College was almost invariably smaller than the Junior Class of the preceding year; but in 1889–90, and in every year succeeding, the Senior Class has been larger than the preceding Junior Class, showing that a considerable number of candidates for the degree of Bachelor of Arts at the ensuing Commencement will have been but one year in College. In general, the practice of entering the College with advanced standing is increasing. It also appears from the successive Reports of the Deans of Harvard College and the Lawrence Scientific School that a considerable proportion of the special students in these two departments remain but one year. These new facts account in part for a sudden increase in the total number of ordinary degrees conferred at Commencement, an increase which first occurred strikingly in the year 1890 and has continued ever since.

NUMBER OF ORDINARY DEGREES CONFERRED AT COMMENCEMENT.

In 1886 . . . 366	In 1889 . . . 356	In 1891 . . . 493
" 1887 . . . 404	" 1890 . . . 473	" 1892 . . . 573
" 1888 . . . 402		

There are of course other causes for the sudden increase in the number of degrees conferred; but the facts now under consideration contribute to the result. The shorter the residence of the average student the smaller the total amount of tuition which he pays, and the more frequently the entire University population changes; but on the other hand, the larger the influx of students and graduates of other colleges into the College, the Graduate School and the Divinity School, the more widely will the influence of the University be diffused, and the greater will be the number of advanced students in arts and sciences assembled at Cambridge. On the whole, the advantages of the new practices greatly outweigh the disadvantages.

At Commencement in 1891 four persons received the degrees of Bachelor of Arts and Master of Arts simultaneously, and at Commencement in 1892 nine persons received the two degrees

simultaneously. Before Commencement, 1891, a few similar cases had occurred. These degrees were conferred in violation of a standing vote of the Corporation and Overseers to the effect that candidates for the degree of Master of Arts shall have pursued a course of liberal study at the University for at least one year *after* taking the Bachelor's degree. The thirteen gentlemen who received the two degrees together were, however, persons of exceptional quality, or had pursued their studies under exceptional circumstances. Of the thirteen candidates two received the degree of Bachelor of Arts *summâ cum laude*, six *magnâ cum laude*, and two *cum laude*. The Corporation and Overseers recognized the fact that both degrees were worthily conferred in every instance; but found them to be conferred in distinct violation of a standing rule of the two Boards. Both Boards, therefore, notified the Faculty of Arts and Sciences in June last that they should not again confer the two degrees simultaneously in violation of their standing rule. There is reason to believe. however, that cases will continue to arise in which it is desirable, both for the candidate and for the University, that these two degrees should be obtained at the same Commencement. Students who expect to become teachers set a high value upon the degree of Master of Arts as available evidence of scholarship, and will make strong efforts to get it. It being perfectly practicable to consolidate the regular work of five years into four, students who need to economize money or time are likely to effect this consolidation. For any student who is determined to make this consolidation, it will undoubtedly be easier and better to take the A.B. and A.M. together at the end of four years, than to take the A.B. in three years and the A.M. in one year, for the obvious reason that the extra work can by the first method be spread over four years instead of three.

The best solution of this problem which has thus far been suggested is contained in a report made to the President and Fellows in June last by the Dean of the Faculty of Arts and Sciences, the Dean of the Graduate School, and the Dean of Harvard College. These officers then proposed that undergraduates who at the end of their Junior year have completed, or nearly completed, the requirements of residence and study

for the degree of Bachelor of Arts should, in proper cases, be permitted to register in the Graduate School, and being so registered, to become candidates for the degrees of Bachelor of Arts and of Master of Arts simultaneously at the end of one more year upon fulfilling all the requirements of study as well as of residence. There has as yet been no opportunity for a careful study of this subject by the Faculty of Arts and Sciences; but the conditions under which the Corporation and Overseers have repeatedly taken exceptional action in conferring the degree of Master of Arts in violation of their own rule still exist.

It has been the practice for nine years past to confer the degree of Master of Arts on students, already Bachelors of Arts, who win the Bachelor's degree in Divinity, Law or Science, or the Doctor's degree in Medicine, after the longest course of study and residence, and upon examinations passed with high credit. The Master's degree has thus been given for the same course of study which was rewarded with the professional degree, and without asking of the candidate any additional residence. The object of this provision was to encourage professional students to pursue the new three years' course of study for the degree of Bachelor of Laws and the voluntary four years' course for the degree of Doctor of Medicine. When the Medical Faculty decided in 1890–91 to require a four years' course of study for the degree of Doctor of Medicine, they no longer needed to offer the Master's degree in Arts as an inducement; and the growth of the Law School, — and particularly the growth of the third year class, — diminished the interest of the Law Faculty in the practice under consideration. On the other hand, the Faculty of Arts and Sciences became distinctly averse to the use of the Master's degree in Arts to give an additional weight to a professional degree. The subject being brought before the University Council in 1892, that body, by a large majority, advised that the giving of the degree of Master of Arts with any other degree, and upon the same course of study, should be discontinued. The advice of the University Council was adopted by the Corporation, saving the rights of persons who had already entered on their studies with the two degrees in view.

The Master's degree has been the subject of more legislation since 1869 than any other ordinary degree conferred by the University, and apparently it has not yet been established on a permanent basis. The Dean of the Faculty and the Dean of the Graduate School both describe in full the situation of the degree of Master of Arts, and both discuss in a very interesting manner the results of the existing legislation on that degree and the desirable changes in that legislation. (See pp. 67–72, 101–105). Their recommendations are entitled to the most serious consideration.

The Faculty of Arts and Sciences decided last June to undertake a new function in relation to secondary education. They decided to offer to make a thorough examination of the regular work of instruction in any secondary school of a grade to prepare boys for Harvard College or the Lawrence Scientific School — the examination to be conducted by experts in the several branches of instruction, and to be made the basis of a confidential report to the master or principal of the school examined. The Faculty therefore organized the Schools' Examination Board of Harvard University, consisting of the President, four professors, and two principals of schools or academies, and directed this Board to select examiners, to make up the confidential report to be sent to the master of any school examined, and once a year to make a report of their own work to the Faculty (See App. p. 221). Since the University has no authoritative relation to any secondary school, these examinations are to be held only on invitation from the master or principal; and no public judgment is to be pronounced on any school examined. The University merely offers to do a friendly service to any suitable school which invites its help, by making a thorough inquiry into its organization, methods, and condition, and then giving to the head of the school the best suggestions which experts can offer for its improvement.

Since the school examined is to pay all the expenses of the examination, it is not probable that any inconvenient number of schools will apply to be examined. To make a complete examination of a good high school or academy, at least six examiners will ordinarily be required, and some of these

examiners will need assistants. It is a thorough examination which is proposed, and not a brief inspection. In a few years, the Faculty will have obtained through this Board an intimate knowledge of the condition of many good secondary schools in the United States, and the useful practice of coöperation between a University Faculty of Arts and Sciences and secondary schools will be established and diffused. This coöperation will benefit not only the small proportion of pupils in high schools and academies who go to college, but also the large mass of the pupils in these institutions whose education stops with the secondary school.

Heretofore the Faculty has exercised its influence on secondary schools solely by its requirements for admission. It is now to add to the influence of its examination papers a direct friendly intercourse with the schools themselves. It is to endeavor to affect directly the teaching within the schools by sympathetic intercourse with the teachers, friendly criticism, and frank discussion of common aims and needs. A few of the State universities have already interested themselves in the condition of secondary schools within their several States, or even beyond those limits; but the method of admission on certificate which has grown out of this relation between State universities and secondary schools is so full of perils both for the schools and the universities that Harvard University has no desire to enter on any such policy. A secondary school will have no motive for wishing to be examined by the Schools' Examination Board and for incurring the expense of such an examination, except the hope of obtaining valuable suggestions for improving its organization, methods or equipment. The Faculty proposes, however, to take an active part in what is now the most pressing educational work in the United States, — namely, the work of reforming and uplifting secondary education. In the absence of governmental authority adequate to this work, the universities and colleges, the academies and high schools, or a selection of these institutions, must do it by intelligent and well-directed coöperation, — influence and persuasion taking the place of authority. As a preliminary measure, university teachers need to be better acquainted with the teachers of high schools and academies, and these two

classes of teachers need to meet each other in conferences and associations where the needs of secondary education can be intelligently discussed. All such efforts will tend to raise the standard of instruction in secondary schools, to broaden the foundations of college instruction, and to improve the intellectual and social condition of the directors of secondary education. Some of the conditions of the public school service in this country (particularly the uncertain tenure of office, and the fluctuating quality of school committees or boards) are unfortunately adverse to the creation of a class of highly educated and experienced school-masters; but custom, if not statute, makes some public school offices fairly permanent, the endowed schools of the country already offer a considerable number of desirable posts, and the large cities support many profitable private schools of great merit. The number of graduates of Harvard University who take up secondary school work is decidedly increasing, and it is much to be wished that this fortunate tendency should be encouraged by a parallel improvement in the conditions of employment in secondary schools and in the public estimation of their importance. In England the head-masters of important schools receive quite as much consideration as university professors, and more emoluments.

It has not been the policy of this University to establish distinct schools for subjects which lie within the province of the Faculty of Arts and Sciences. Thus there is no School of Philosophy, or of Political Science, or of Journalism, or of Public Finance in Harvard University, with separate requirements for admission and separate degrees for each school; but there are groups of courses of instruction in these several subjects which have common foundations or a unity of interest. The main groups are called divisions, and the lesser groups departments; and each of these divisions and departments is organized with a chairman at its head. Students in any one of these groups, or in several of them, are, however, all in pursuit of the common degree of A.B. Two interesting changes, which were made in these divisions during the year 1891–92, are fully described in the report of the Dean of the Faculty, page 64. The most important fresh

additions to the subjects of instruction are in the departments of philosophy and economics, the University having definitively taken up two new subjects, — namely, experimental psychology and economic history, — and having appointed a full professor of each subject.

The present scheme of requirements for admission to Harvard College was adopted in 1886. Among other important improvements it provided for the admission to College of boys who had never studied any Greek, and permitted advanced mathematics, and either chemistry or physics taught in the laboratory method to be offered as substitutes for Greek. Six years have now elapsed since this modification of the former requirements for admission was announced, and in that period 148 persons have entered Harvard College without Greek. Of this number thirty-five have already graduated. Of these thirty-five men, one obtained the degree *summâ cum laude*, ten *magnâ cum laude*, six *cum laude*, and eighteen without distinction. Two of the thirty-five received the degree of Master of Arts simultaneously with that of Bachelor of Arts. This record is, as a whole, distinctly above the average. Of the 148 persons, 91 have as yet received no degree, but have made College records for one or more years. The records of these 91 undergraduates, expressed in grades, are as follows: —

A	*A—B*	*B—A*	*B*	*B—C*	*C—B*	*C*	*C—D*	Total.
1	5	9	14	8	10	34	10	91

There remain three persons with a record of less than one year, and nineteen who were admitted to College in the summer of 1892 and have as yet no records. Of these nineteen, six entered without conditions. Of the 91 men who have not graduated, but have made College records, a little more than half have records above *C*. This result is a very creditable one, and shows conclusively that the persons who have thus far entered College without Greek are abundantly able to profit by their College life, and to win a standing, which is, on the average, above that of those who entered with Greek. The institutions at which students have been prepared for admission to Harvard College without Greek may be divided into groups as follows: —

From New England High Schools, there have entered	38
" High Schools outside of New England, there have entered	13
" New England Endowed, or Private Schools, there have entered	43
" Endowed or Private Schools outside of New England, there have entered	28
" Universities and Colleges, there have entered	7
" the Institute of Technology, " " "	1
" Private Tuition, " " "	18
Total	148

The English High School of Boston has sent twenty-six out of the thirty-eight persons who have been prepared at New England High Schools. Thirty-seven persons out of the 148 entered Harvard College in the first instance as special students, and were subsequently transferred to regular standing, and one person first entered the Lawrence Scientific School, and was subsequently transferred to the College. In the year 1892, eight persons who had been prepared for College in the English High School of Boston received the degree of Bachelor of Arts, one *summâ cum laude*, three *magnâ cum laude*, two *cum laude*, and two without distinction. This is a most remarkable record for the graduates of a single school at one College Commencement; but it is to be observed that three out of these eight persons found it more convenient to prepare themselves for the admission examination in elementary Greek by extra labor than to meet the requirements in advanced mathematics and science in substitution for the Greek.

Until the year 1888–89 it was the practice of the College to assign beneficiary aid only to persons who had proved their quality within the College itself; but when the Price Greenleaf Aid became available to the amount of about $17,000 a year it was thought desirable to assign a considerable portion of this sum to persons who were proposing to enter the College, and to make the assignment in advance of their coming to Cambridge. The great majority of persons thus promised aid in advance were members of the coming Freshman Class; but there were also some older men who were about to enter with advanced standing. It was of course necessary to assign this aid on the evidence of teachers and other persons who knew the applicants, — the Committee making the assignment having

no opportunity to see and talk with the candidates, — and the Faculty felt great doubt whether it were possible to make a wise assignment under such conditions. Such an award has been made for four years, and the wisdom of the award can now be tested by the subsequent College records of the young men aided. The following tables show that the awards were more and more successful with each succeeding year. The school authorities became more careful in making their recommendations, the persons acting on behalf of the College became better judges of testimonials, and thirdly, the competition for the aid becoming wider and keener the selection was made from a larger number of candidates.

SUBSEQUENT RECORDS OF PERSONS PROMISED AID.

1888-89.		1889-90.		1889-91.		1891-92.	
A or *B*,	65%	*A* or *B*,	52%	*A* or *B*,	63%	*A* or *B*,	63%
B—*C* or *C*,	22½	*B*—*C* or *C*,	37	*B*—*C* or *C*,	35	*B*—*C* or *C*,	35
Below *C*,	12½	Below *C*,	10	Below *C*,	2	Below *C*,	2

	1888-89.	1889-90.	1890-91.	1891-92.
A	1	1	4	3
A—	3	2	6	3
A to *B*+	0	4	0	0
A to *B*	7	8	14	12
A to *B*—	4	3	2	7
B+	1	2	4	3
B	8	2	4	5
B—	2	2	8	2
B to *C*+	0	3	3	4
B to *C*	2	7	14	11
B to *C*—	1	1	1	1
C+	1	2	3	2
C	2	3	1	1
C—	3	1	1	0
C to *D*+	0	0	0	0
C to *D*	3	3	0	1
C to *D*—	0	1	0	0
D+	0	1	1	0
D	2	0	0	0
Total	40	46	66	55

	1888-89.	1889-90.	1890-91.	1891-92.
Given to *A* or *B* men	$3,025	$3,800	$5,750	$4,825
" " *B*—*C* "	2,775	3,200	6,975	4,670
" " *C*—*D* "	2,100	2,150	1,300	600
Total	$7,900	$9,150	$14,025	$10,095

In the year 1891–92 two thirds of the persons who received promise of aid in advance proved themselves entirely worthy of it; and one-half of the whole number won aid for their second year on the competition of the whole Freshman year. A majority of those who failed to get aid in the second year in the open College competition came from remote schools or colleges at which they had not succeeded in obtaining a first-rate preparation; but some of them came from New England schools and academies of high reputation. In the year 1891–92 six well-known New England schools, which habitually send young men to Harvard College, recommended for aid persons whose Freshman records did not justify a continuance of aid to them. On the whole, the indications are that this mode of assignment can be made to yield satisfactory results, as the school and college authorities become familiar with it. It is to be hoped that it will succeed; for the first year of residence at Cambridge is often the hardest of all for a young man whose resources are small.

The statistics concerning the admission examination which the Dean gives on page 76 show that the easiest way of gaining admission to Harvard College is to present all the elementary studies and only two advanced studies. The plans which require the presentation of three, four or five advanced studies hardly hold their own against plan (*a*) — as indeed might have been expected from the beginning. Plan (*a*) beside being easier, has also the great advantage that it disposes of the elements of Greek, Latin, French and German during school life. Plans (*c*) and (*d*) are heavily handicapped by the absolute requirement of advanced mathematics in each, experience having demonstrated that only a small proportion of the boys in high schools and academies have any taste or capacity for the higher mathematics. It should be stated, however, that this handicap on plans (*c*) and (*d*) was an intended part of the compromise of 1886 concerning admission requirements, — the older and traditional subjects were protected against the newer by this mathematical obstacle.

It is worth while to call attention again to the losses which every College class suffers on its way through College. The tables on page 74 of the Dean's report show that the Fresh-

man, Sophomore and Junior classes of the year 1891–92 taken together lost nearly 9 per cent of their number during that year, nearly 7 per cent of the three classes having actually left the College, and 2 per cent having dropped into a lower class. If this percentage of loss held for any one class throughout its four years, more than one-third of each class would disappear during the period of four years; and such is actually the ordinary experience of a class. Thus, the Senior class of the current year, which entered College in 1889, had already lost at the beginning of its Senior year 111 members, the average membership having been 306 during its first three years in College. The common impression that college classes are very stable has no foundation so far as Harvard College is concerned; on the contrary, the losses of every class are great, although in recent years they have often been made good by admissions to advanced standing.

It appears in the report of the Dean of Harvard College, (page 74) that of 293 persons who received the degree of Bachelor of Arts in course in June last, 39, or 13 per cent of the whole number, had not been members of the Senior Class of that year. This is in some respects a new phenomenon, deserving the attention of the Board of Overseers. Of the 39 persons who had not been in the Senior Class, 20 were last registered in the Junior Class, 13 in the Graduate School, and 6 in some one of the professional schools. Of the 20 persons who were last registered in the Junior Class, eleven had first entered College in 1888 and one in 1887; four entered with advanced standing but were never Seniors; and four entered as Freshmen in 1889 and obtained the degree in three years. Six persons beside the four just mentioned obtained the degree in three years, having first entered College in 1889; but these six are not included among the twenty mentioned by the Dean, since they were registered as Seniors in 1891–92.

The attention of the Overseers is invited to the remarks of the Dean on prizes for which rich youths may honorably compete with poor. It is an interesting inquiry how the College can supply the rich young man with an appropriate stimulus to do his best. This problem, however, is one which does not vex Harvard College alone; it has long perplexed rich parents and civilized society.

The rapid growth of the Scientific School since the year 1885–86 still continues; and with the resulting increase in the amount of the tuition fees it has been possible to add materially to the facilities of the School. The Rotch Electrical Laboratory and the Laboratory of Anatomy, Physiology and Physical Training — both made ready in 1891–92 — are important additions to its mechanical equipment. The fact that all College instruction is open to students of the Scientific School makes the School a place of singular privilege for students who are fitting themselves for the scientific professions. There is every reason to believe that this School will in a few years become one of the important departments of the University. Its requirements for admission are so moderate that it is accessible to the graduates of a large number of secondary schools which are not capable of preparing boys for admission to the College; it shares with all other Cambridge departments of the University the advantages of cheap board and lodging; and the value of its degree is heightened by the prestige of the whole University.

As it is in good measure a professional school, it is administered, like all professional schools, on the group system of studies rather than on a wide elective system; and under arrangements made during the year 1891–92 it now offers to students their choice between seven carefully constructed groups of studies, each extending over four years. In the effort to compress as many desirable subjects as possible into each of these groups, the Faculty has perhaps exceeded the reasonable number of weekly hours of labor for each student. At any rate, more hours a week of attendance at lectures, and in laboratories and drawing rooms, is expected of the Scientific student than of the College student when pursuing similar studies. The degree of Bachelor of Science as compared with the degree of Bachelor of Arts represents smaller attainments at admission; but more labor during the normal four years of residence.

The resources of the School for thorough instruction in chemistry, physics — including electricity — and the various branches of biology and geology are all admirable, while for all the linguistic, historical and economic instruction needed it

has only to draw upon the resources of Harvard College; but there are certain additional technical or artistic subjects in which instruction ought to be provided. Such are the subjects of highway, sanitary, and mechanical engineering, and architecture. Provision has been made during the current year for a course of instruction in highway engineering; but the other subjects mentioned are still to be provided for.

The increase in the Graduate School for the year 1891–92 was very satisfactory in amount, and still more satisfactory in quality. The greatest increase was in the number of students coming from other institutions, this number having more than doubled in that single year. The registration of graduates of other institutions as undergraduates in Harvard College still continues, 37 such graduates having preferred in that year to register as undergraduates.

It appears from the table on page 100 of the report of the Dean of the Graduate School that 251 persons applied for fellowships or scholarships in the Graduate School during that year, and that of this number 69 were appointed to fellowships or scholarships, while 17 obtained appointments as instructors or assistants, making 86 persons who received appointments. Fifty-one others entered the University in some one of the departments without any aid from the resources of the Graduate School; so that of the 251 applicants there are 137 in the University during the current year. 114 persons who applied for aid are not now at the University. Of the 69 men who received fellowships or scholarships, 26 were Harvard graduates or undergraduates exclusively, 33 were graduates or undergraduates of other institutions exclusively, and 10 were Harvard graduates who had previously graduated elsewhere.

The Dean of the Graduate School calls attention (p. 105) to the urgent need of a revision of the standing votes which were adopted in the year 1871–72 as the fundamental law of the Graduate Department. He points out that these votes were adopted in the main before the Department came into existence, and that they ought now to be made more flexible, so that the Faculty of Arts and Sciences may adapt the School to changing circumstances and new conditions. In particular the Dean

urges that the value of the degree of Doctor of Philosophy and Doctor of Science would be enhanced by abolishing for those degrees all time restrictions except the general one imposed by statute, — namely, that no person shall be recommended for any ordinary degree except after residence at the University for at least one year. He further urges that it is the duty of the University to promote, so far as it safely can, the custom of accepting residence at one university to count as residence at another, — a custom which has had an admirable influence in Germany, and may be expected to have an equally good influence in the United States, since the number of American institutions at which really advanced studies may be profitably carried on is constantly increasing.

The Dean of the Divinity School calls attention (page 109) to the fact that of forty students present in the year 1891–92 only fifteen remain over for the year 1892–93. The result is explained in part by the large proportion of the students in the School who have already graduated from other schools, and in part by the fact that it is easy to enter on the work of the ministry without completing a professional education. The Dean calls attention to the fact that the attendance at the School has been slowly increasing during the last twenty years; and he indicates the chief obstacle to the growth of the School, and its chief defect as an undenominational seminary, when he says (page 110) that the idea of a scientific training for the ministry cannot be fully realized, until the School can offer its students an election between courses representing different systems of Theology. The Semitic languages and history, New Testament and Patristic Greek, ecclesiastical history, sermon-writing, and comparative religion can all be scientifically taught by single professors in a manner suitable for students of all denominations; but systematic theology cannot be dealt with satisfactorily for all denominations by one professor. There should be at least two, and preferably three professors of that subject.

The number of students in the Law School increased from 285 in 1890–91 to 370 in 1891–92, the bulk of the increase

being almost equally divided between the classes of the first and the second years. In consequence of this large increase, and of the resulting ease in the budget of the School, the Faculty was increased by the appointment of one professor and one assistant professor. A lecturer was also engaged to deal with the subject of Pleadings and Practice under the New York Code of Civil Procedure.

In order to maintain, in spite of the increasing numbers of the first year class, the method of teaching which characterizes the School, arrangements were made to divide the first year class into two sections in Contracts, Property, Torts, and Civil Procedure. To maintain unimpaired the reading-room and library facilities which also characterize the School, the students' reading-room was enlarged by adding to it a space heretofore but little used, the result being the addition of thirty-eight very desirable desks. The library and reading-room constitute the sole laboratory which the Law School needs; and it is the intention of the Faculty to keep that one laboratory in the most servicable condition possible.

In consequence of the division of the first class into sections, the lecture rooms of the School are used more constantly in the morning than is desirable; but the remedy for this condition of things is to use the afternoon hours for lectures to a greater extent than heretofore. It has been the rather luxurious practice of the School, thus far, to use for lectures chiefly the hours from nine to one. It may hereafter be necessary to use the afternoon hours freely, as other departments of the University are accustomed to do.

The surplus of the School last year was $11,635.88. If the present number of students be maintained, it will be possible to add still further to the teaching staff; but it is not clear that this number may not be reduced by the restrictive measures already adopted. These measures are three in number. First, non-graduates are not to be admitted to the School hereafter, unless they pass the admission examinations; secondly, the requirements for admission will hereafter include two languages beside English instead of one; and thirdly, no student, whether a candidate for a degree or not, will be permitted to return to the School unless he has passed at the end of the preceding

year examinations in at least three subjects. It is obvious that these three measures taken together will raise the general standard of the School, and that, as a consequence, the number of students may be diminished. It is highly improbable, however, that the diminution will be either considerable or lasting.

On the death of the annuitant in September last, the income of the Bemis Fund for the support of a professor of international law in the Law School became available. The fund amounts to $50,845.23 and will not yield therefore much more than half of the salary paid to senior professors in the Law School. It was the wish of Mr. George Bemis, the founder, that the incumbent of his professorship should be a jurist who had been in public life or the diplomatic service, or who, at least, had lived abroad and so had had opportunity to view his country from without. He also wished the incumbent to be "not merely a professor of the science, but a practical coöperator in the work of advancing knowledge and good-will among nations and governments." It will obviously be difficult to fill this chair.

The events of chief interest in the Medical School during the year under review were the enlargement of the functions of the professor of pathology, and the appointment of a professor of that subject who is to give all his time to teaching and research; the appointment of a new associate professor of physiology; the establishment of a full professorship of histology and human embryology; and the enlargement of the department of bacteriology. These are all additions to what may be called the scientific side of medical instruction; but it must be remembered, first, that pathology, physiology, histology, and bacteriology are the sciences on which all real improvements in medicine must be founded; and secondly, that the imparting to the medical student of the true scientific spirit in research is the most important service to be rendered to him during his education. The medical student who becomes thoroughly imbued with the modern scientific spirit through the careful pursuit of experimental sciences will be sure to make, both in the Medical School and in after life, a

productive use of his clinical opportunities. The student who does not catch that spirit had better never have studied medicine.

In appointing a professor of pathology, and an associate professor of physiology, the Corporation went outside of the ranks of the medical profession in eastern Massachusetts and sought the one at the Johns Hopkins Hospital, and the other at the University of Michigan.

The Dean calls attention to the diminution in the proportion of college-bred men who have entered the Medical School since the year 1884. The tables and diagrams which he has constructed, pages 124–5, demonstrate effectively this unfortunate diminution, — the causes of which are not easily to be detected. There was apparently nothing in the condition of the School itself which would have led to the decline which began to be so decided in the year 1886, and which has continued ever since with but one temporary check, being most marked at the beginning of the year now current. The facts set forth by the Dean tend to confirm the opinion that the almost universal prolongation of the period of professional study involves a corresponding shortening of the period heretofore allotted to school and college training, — a shortening, be it observed, which can easily be effected without any diminution of the scholarly attainments, or any weakening of the mental training, now deemed satisfactory at the close of college life. The College of Physicians and Surgeons of New York, the experience of which in this respect, as cited by the Dean, has been the opposite of that of the Harvard Medical School during the same years, is the Medical School of Columbia College; and it is to be noticed in this connection that the average age at which the degree of A.B. is taken at Columbia is decidedly lower than the corresponding average age at Harvard College.

It is noticeable that during the same years there has been a considerable decline in the percentage of college graduates in the new entries at the Law School, — a fact which may readily be deduced from the table on page 117 of Dean Langdell's reports, the lowest percentage of the eight years being reached, as at the Medical School, in the last year of the table.

The Faculty of the Dental School made arrangements last June for the division into two classes of the students who have been a year or more in the School, — a division which before the current year has not been effected. This change necessitated the appointment of additional instructors in Operative Dentistry and in Mechanical Dentistry, each instructor giving one afternoon every week to the direction of operations in the Dental Infirmary. One set of instructors was appointed for the second year class, and another for the third year class in each subject. The School never before had so many students, six of them coming from English cities. The little endowment of the School amounted on the 31st of July, 1892, to $21,887.82.

The Department suffers greatly for the lack of a proper building; and last Spring a committee of the alumni was appointed to make a determined effort, — whenever in their judgment the proper time should come, — to raise a subscription sufficient to buy a suitable lot of land and build an appropriate building for the adequate accommodation of the School and the Infirmary. Since the opening of the current year this committee has begun the execution of the task assigned them.

The Bussey Institution had the largest number of students which it has had since the year 1871–72; but this gain has not been maintained during the current year. The Institution again had a favorable balance of receipts over expenses, — amounting in 1891–92 to $875.96. As in previous years, the horticultural department sent an indispensable supply of flowers to the classes in botany at Cambridge.

In the Veterinary School an opportunity occurred of greatly strengthening the veterinary teaching staff. In the month of January the Instructor in operative veterinary surgery and Superintendent of the Hospital, the Instructor in anatomy, and the Resident Surgeon at the Hospital resigned almost simultaneously, in order to establish another veterinary hospital in Boston, thus compelling the Corporation to reorganize the veterinary staff at short notice, and in the middle of the year. They availed themselves of this

opportunity to secure the services of Dr. Frederick H. Osgood, a graduate of the Massachusetts Agricultural College and of the Royal College of Veterinary Surgeons, England, as Professor of veterinary surgery; of Dr. Henry F. Leonard, a graduate in Medicine of the College of Physicians and Surgeons of New York, and a graduate of the Harvard Veterinary School, as Instructor in anatomy; of Dr. Lester H. Howard, a graduate of the American Veterinary College in New York, as Clinical Lecturer, and of Dr. Wesley L. LaBaw as Demonstrator in anatomy, Assistant Surgeon at the Hospital, and Curator of the Veterinary Museum. The staff of the School and Hospital was thus greatly reënforced, and the good effects of these changes were at once manifested in both School and Hospital. Professor Osgood was appointed Surgeon in charge of the Hospital, which was placed entirely under his direction.

The great needs of this department of the University are a larger Hospital and such an endowment as will enable the Hospital to do gratuitous work for animals belonging to poor owners. Only in this way can the clinical opportunities for students be adequately enlarged. At present the Hospital can only receive paying patients, and on that limited plan it is self-supporting. The School, however, is by no means self-supporting, and now owes the university treasury a debt of $19,158.65, of which about $16,000 represents the cost of an addition, made for School purposes, to the original Hospital building.

As has often been urged in these Reports, the Veterinary Department ought to be interesting to all those who know the value of the study of comparative medicine, who have an affectionate interest in any of the domestic animals, or who appreciate the great commercial interests involved in the successful breeding and raising of live stock.

The Librarian's report presents the usual statistics concerning the accessions to the Library, the ordering and cataloguing of books, the use of the Library, and the gifts made to it. It contains also this year an interesting report of the Curator of Coins, who has completed the work of preparing a full and

methodical catalogue of the collection. This collection consists of 1161 ancient coins and 1739 modern coins, making a total of 2900.

The one thing which needs to be said here about the Library is that the accommodations for books and the accommodations for readers have become totally inadequate. Fully 10,000 volumes a year are added to the Gore Hall collection, and since the year 1888–89, 1067 students have been added to the University. For the year 1888–89 the Librarian reported 1167 students taking out books, for the year 1891–92 he reports 1580 students taking out books. The total number of persons registered and entitled to take books away from the Library building was 1729 in the year 1888–89, while in the year 1891–92 it was 2325. The number of readers in the building has increased in still larger proportion. For the increased number of users there has been no appreciable increase of accommodations. The need of a new reading-room is very urgent; but the cost of a suitable building to be attached to the present Library could hardly be less than $150,000. The conversion of the interior of old Gore Hall into a proper book-stack would probably cost about $70,000. The new stack, constructed in 1876, already needs to be extended to the East; and an addition sufficient for perhaps ten years could be constructed for about $30,000. Including the cost of the necessary furniture, it would be imprudent to estimate the total cost of these much needed additions and alterations at less than $250,000. As has been repeatedly pointed out in these Reports, the Corporation is absolutely unable to incur any such expenditure. The only contribution which it could make would be the Gore Fund, which now amounts to $25,947.19, and is chargeable with an annuity of $300. Every year makes the over-crowding of the reading-room worse, and increases the difficulties of the Librarian in finding shelf-room for the accessions. Such is already the confusion of the books in consequence of lack of room that the cost of delivering the books called for by readers is sensibly increased, and many unnecessary charges are incurred in the endeavor to keep the card catalogue in condition to be useful.

It is a great loss to students and teachers that the present Library cannot be used except by daylight. The old part of Gore Hall, which is used as a reading-room, is very far from fire-proof, and the rules laid down by the Corporation prescribe that no fire, lights, or matches shall be used within the building. For several years past the whole building has been heated by steam from boilers situated in University Hall.

On the death of Dr. Watson, Curator of the Herbarium from 1874 to 1892, Benjamin Lincoln Robinson, Ph.D., was appointed Curator, and in August last Mr. Henry E. Seaton, who had been instructor in botany and Curator of the Herbarium at the University of Indiana, was appointed Assistant Curator for the current academic year. It was also possible to employ more assistants than ever before. The liberal gifts to the Herbarium for immediate use, and the good income from Professor Asa Gray's copyrights ($2817.33 in 1892) permit this increase of expenditure at the Herbarium. The result has been a great increase of the work accomplished, — over 20,000 plants having been added to the collection during the year. Moreover, it has become possible for the Curator to resume work on the Synoptical Flora of North America, the great work first interrupted by the death of Dr. Gray and then by the death of Dr. Watson. In the present debates about botanical nomenclature, it will be the policy of the Herbarium to act a conservative part; no serious departure will be made from the nomenclature thus far used in the Herbarium and in the published works of its Director and Curators.

The report of the Director of the Botanic Garden and the Botanical Museum is an interesting account of the rapid increase of the living and dried collections, of the instruction in botany, and of the pecuniary resources of the department. The annual expenditure of the department has almost doubled in ten years, and the equipment of the department, both for teaching and for maintaining a public exhibition of botanical specimens, has been extraordinarily increased by numerous and various gifts since the completion of the botanical laboratories and exhibition rooms at the University Museum.

The Director uses with such good judgment, frugality and energy all the resources which are placed in his hands, and procures with them such quick and striking results, that his friends and supporters are constantly encouraged to continue their benefactions to the department. The Botanic Garden is practically open to the public, just as if it belonged to the City. Nevertheless, the Garden has to pay for all the water which is used to protect the trees and plants from drought, and also for the police protection which is occasionally necessary. The contract which was entered into by the city of Boston and the University for the development and care of the Arnold Arboretum at the Bussey farm in West Roxbury, under the terms of which the Park Commissioners of Boston provide for the police protection of the Arboretum, certainly suggests that the admission of the public to the open grounds and collections of the University might naturally be followed by the assumption on the part of the city of Cambridge of the cost of providing whatever police protection the admission of the public makes necessary.

The work to be done by the city of Boston at the Arnold Arboretum will soon be finished. A large amount of draining, grading, and road-building was done during the year 1891–92, and the Director was consequently enabled to do an unusual amount of permanent planting during the past season. The Museum and Herbarium building presented to the Arboretum by Mr. H. H. Hunnewell has been completed, and the very valuable library and dried collections of the Arboretum have been placed in safety within it.

A large expenditure was made on Boylston Hall during the year 1891–92. A new laboratory for organic chemistry was built and equipped in the third story, and the large room formerly occupied by the Mineral Cabinet in the second story was converted into a lecture room seating about 500 persons. Boylston Hall now contains six laboratories for students and four private laboratories, beside two large and one small lecture-rooms. It has separate desks for 258 students at work simultaneously, and 162 of these desks are provided with two distinct sets of drawers and lockers so that each desk can be

used by two students who work at different hours. The Hall also contains the storage rooms and balance rooms necessary for the accommodation of this large number of workers. The exterior walls of the building are of stone and the interior of brick; but the story in the roof is practically a wooden construction. Beside the combustible character of the roof story, the building has two defects, neither of which is irremediable, — its main staircases are of wood, and its means of ventilation are inadequate. Both these defects can be remedied at moderate cost; but the Corporation, having spent nearly $10,000 on the building in the year 1891–92, did not feel able to go farther.

The Director of the Jefferson Physical Laboratory (page 174) exhibits with satisfaction an increase in the number of students studying physics at the Laboratory, and calls attention to the researches of the instructors and students. In the year to which the report of the Director relates, the whole number of students under the Faculty of Arts and Sciences was 1763, while the whole number of elections of courses in physics was 265, the number of individual students choosing physics being of course much smaller. The number of choices in physics was only fifteen per cent of the number of students registered under the Faculty of Arts and Sciences, and it was not more than three and one-half per cent of the total number of choices of courses made by that number of students. Now physics is that scientific subject which has to-day the largest number of novel and valuable applications in the useful arts; and the relatively small number of choices in such an important practical subject illustrates the general fact, that students in arts are not much influenced in their selection of subjects by considerations of utility or bread-winning, and the further fact that the taste and capacity for the study of exact sciences are rare compared with the taste and capacity for languages, literature, history, philosophy and political science.

The work done at the Astronomical station at Arequipa, Peru, has demonstrated that Uriah A. Boyden was right in his belief that the adverse effects of the atmosphere on astronomical observations, taken at the ordinary level and in the civilized

regions of the north temperate zone, might be in good measure overcome by placing the instruments at a great elevation in some more favorable climate. The Fund which bears his name is now doing invaluable service in the advancement of astronomical science, and the Director of the Observatory is convinced (p. 182) that a permanent station ought to be maintained at Arequipa, or in some equally advantageous situation. He entertains no doubt that a great advance would be made in our knowledge of the planets, and perhaps of the fixed stars, if a telescope of the largest size could be steadily employed under what have now been proved to be extraordinarily favorable atmospheric conditions. Mr. Boyden was not an astronomer, but an inventor and hydraulic engineer. The money which he saved in the prosecution of this technical calling, having been intelligently and persistently used in following out a suggestion made by him in a field in which he was not an expert, will doubtless lead — has already led — to scientific results of great interest and value.

The origin of the Boyden work at the Observatory affords a curious contrast to the origin of a similar work prosecuted under the title of the Henry Draper Memorial. These latter investigations form the continuation of the remarkable life-work of a physical astronomer. The two series of investigations are now carried on in combination with great advantage, each deriving important aids from the resources of the other.

A third great benefaction for the advancement of astronomical science will soon begin to demonstrate its effects; for the Bruce photographic telescope is rapidly approaching completion, and it is proposed to use it, if it is successful, at the Boyden Station at Arequipa, thus putting what will be in many respects the most powerful instrument in the world for its purpose at work under the most favorable atmospheric and climatic conditions yet discovered. The Bruce benefaction proceeds neither from an inventor or engineer like Mr. Boyden, nor from experienced scientists like Professor and Mrs. Henry Draper; but from a secluded woman who knows only so much of astronomy as any thoughtful person may expect to acquire by reading during a long and quiet life, but who feels to the full the simple wonder and delight with which

reflective and imaginative minds have in all ages contemplated the starry heavens.

The fire-proof storehouse for the books, manuscripts and photographic plates of the Observatory is nearly completed; and these valuable objects will soon be deposited in a place of security.

The time service of the Observatory was discontinued in March last on account of the action of the United States Naval Observatory in furnishing the public gratuitously with time signals of moderate accuracy. The income of the Observatory was thus reduced by rather more than $2000 a year; but the Observatory was relieved from danger of accident or fire from the powerful currents which might at any time be transferred to the Observatory wires from trolley and electric light lines.

The list of publications of the Observatory during the year 1891–92, which is appended to the Director's report (p. 186), gives evidence of great activity not only in the use of the numerous instruments of the Observatory, but also in reducing the observations, studying and digesting the results, and preparing them for publication.

Thanks to the ample provision for the advanced study of zoölogy made at the Museum of Comparative Zoölogy, the number of advanced students of this subject continues to increase, and the number and value of the contributions from the Zoölogical Laboratory increase in a similar ratio. In 1891–92 there were seven students in the advanced course on microscopical anatomy and the same number in the course on the embryology of vertebrates. Nine students were pursuing special work in the anatomy and development of animals under the direction of Professor Mark, of whom two received at the last Commencement the degree of Doctor of Philosophy. There are but two elementary courses given in this subject, — each a half course, the first given in the first half of the year and the second in the second half, — and these courses attract a satisfactory but not excessive number of students. The advanced courses are resorted to by small numbers, which is the case in every one of the scientific departments of the University. The same phenomenon appears in the laboratories

of physics, chemistry, botany, geography and geology; but the department of zoölogy labors under the special difficulty that its students cannot look forward to any recognized method of earning a livelihood except by obtaining a position as a teacher, curator, or expert in the service of government — national, state or municipal. Many persons think of students of science as seeking practical or utilitarian ends; but as a matter of fact their studies, particularly in natural history, are very remote from such ends. The advanced students of languages and mathematics are practical money-seekers compared with the naturalists, — their opportunities of earning a livelihood being much more numerous and accessible.

The Curator of the Museum of Comparative Zoölogy points out (p. 189) that additional teachers are needed in entomology, vertebrate and invertebrate zoölogy and palaeontology, as well as marine zoölogy; and that additional assistants are needed for the professors and instructors already employed. These are all true needs of the department of biology; but they are needs which cannot be supplied without large additional endowments. In 1891–92 the department of zoölogy consisted of one professor, two instructors, one lecturer and two assistants. For the current year there has been some increase in the amount of assistance supplied for the teachers.

The geological, petrographic and geographical laboratories are in close connection with the Museum of Comparative Zoölogy, and share with the department of botany the use of the spacious additions to the Museum which were completed in the year 1890–91. The work of all these laboratories constantly grows and improves; and the number of assistants employed in them has greatly increased within the last two years. The Corporation has fully realized the importance of providing the teachers with skilled assistants, both for conducting laboratory instruction and for making and arranging collections. They have also authorized from time to time considerable expenditures in these laboratories for fittings and apparatus; and they have been glad to place in the hands of the gentlemen conducting them all the laboratory fees received from the students in their respective departments. Such additions as these to the annual expenditures for the promotion

of these subjects, the Corporation have been able and glad to make; but they lack the means of creating new professorships in the several departments affiliated with the Museum of Comparative Zoölogy.

The Newport Marine Laboratory, which is conducted by the Curator of the Museum at his own charges, is a very important addition to the resources of the University for giving advanced instruction in Zoölogy. Considerable additions have lately been made to this laboratory, and during the summer of 1892 nine advanced students were at work in it. The Curator's report contains wise and interesting suggestions concerning the possible enlargement of this establishment, and the favorable conditions which Newport might afford as the permanent site of an efficient marine laboratory.

The researches which have been carried on in American archaeology, ethnology and anthropology during the past year and a half under the direction of the Peabody Professor of American Archaeology and Ethnology are the most extensive investigations in this field which have ever been carried on under one direction. Professor Putnam was early selected as the head of the department of ethnology and archaeology at the World's Columbian Exposition, and large amounts of money have been placed at his disposal for collecting the materials to be exhibited at the Chicago Fair and for making new researches in this vast and attractive field. Professor Putnam has used this opportunity with signal intelligence and energy, and the Peabody Museum will ultimately derive great advantage, as indeed it should, from the connection of its Curator with this department of the World's Fair. Professor Putnam's previous experience in the field and in the Peabody Museum fitted him for the work which the Directors of the Fair offered him; he was ready to seize the unique opportunity. One must read his very interesting report (p. 198) in order to understand the scope of the work which he has been directing and the benefits which will hereafter inure from it to the Museum.

The Honduras Expedition (p. 204) was carried on during the season of 1891–92 with great success, chiefly by means of

private contributions, but with some aid from the Columbian Exposition; and the field party for the present season has already arrived at Copan.

The Trustees of the Museum were greatly encouraged by the gift of a fund of $10,000 from the Hon. Roger Wolcott as a memorial of his brother. The income of this fund will be devoted for the present to the purchase of collections.

The Peabody Museum is a very strong instance of a scientific establishment whose endowments are absolutely insufficient for the work which presses to be done. Its field of work is immense; its resources relatively insignificant. Its position is all the more trying because all the material for the intelligent study of American archaeology and ethnology is perishable and perishing, while the years go by and the Museum remains helpless to reach and preserve it.

The Curator of the Semitic Museum describes in full (p. 211) the additions which have been made during the year to this valuable collection; but he points out that additions of the best quality can be but slowly acquired through correspondence, and that some authorized agent ought soon to visit the European museums, and if possible, the Orient, in search of suitable materials for the Museum. Of Mr. Schiff's original gift ($10,000) $4,457.09 remained unexpended on the first of August, 1892. It has been the policy of the Curator to buy none but objects of real and permanent value. He has been disappointed at the long delays in executing orders for casts from the Louvre and from the Imperial Museum at Constantinople; but the objects ordered are worth waiting for, and can be procured only from these two government establishments. The collection is much visited, both by the students and the public, a new interest having been awakened of late years in Hebrew and Assyrian history.

New Summer courses on the following subjects were offered in the Summer of 1892: — American history, socialism and social problems, mathematics, horticulture, the history and art of teaching, elocution, and physiology and hygiene. These new courses had 90 students, while the courses which were

repeated from the Summer of 1891 had 410 students, against 351 in the preceding Summer. This enumeration includes the courses given at the Medical School in Boston. The increased attendance on the Summer courses amounted to 149 persons, and the total attendance to 500. The courses at the Medical School are of various length, but in general are decidedly shorter than the courses given at Cambridge.

This body of Summer instruction is a considerable one, the original idea of the Summer courses having been much enlarged. The Summer courses began at Harvard University in 1874 as a recognized part of university work; but they were then confined to scientific subjects, and field work or laboratory work was the most important element. They have now been extended to the modern languages, elocution, history, pedagogy, socialism and mathematics. From the beginning, the Corporation has been somewhat concerned lest the teachers in the Summer courses should be injured by adding a serious labor during the Summer to their regular work of teaching in term-time; but the experience of twenty years has shown that this apprehension was not well grounded. The teachers are, as a rule, the younger instructors and assistants who have become familiar with the ground covered by the Summer courses during their regular labors in term-time under the guidance of the older teachers in the same department. A few assistant professors take part in the work; but no professors, — except perhaps by giving a few lectures during the progress of some course in which they are interested. So far as the students are concerned, no injury to health is known to have happened to any person who has attended a Summer course at Cambridge, either at the time or afterwards, in consequence of his or her attendance. For young and vigorous persons a complete vacation of thirteen weeks is not necessary every year — perhaps is never necessary, unless after serious illness. The Summer courses in engineering, botany and geology all carry their students into the open air, and are unquestionably advantageous so far as health is concerned. For persons who live in the western states, Cambridge is ordinarily an agreeable place in which to pass six weeks of the Summer. At any rate, the resort to the Summer courses of the University increases at

a rapid rate; and inasmuch as almost all the persons who attend them are adults, and a large proportion teachers, it is fair to assume that they understand their own interests and objects. There are no beneficiary aids for the Summer students. Every student pays a tuition-fee and his expenses.

The appointment of a Publication Agent, which was made at the end of May last, was a new step, but one which the Corporation believed would promote efficient administration. The Publication Agent has charge of the printing and distribution of all the reports, announcements and other official documents which are issued in the name, or on behalf, of the University. He edits the annual Catalogue; directs the advertising of the University; arranges the publication and sale of the printed aids in instruction which the teachers desire to have issued to the members of their classes; and conducts the business relating to some of the various publications which are made by the aid of permanent funds belonging to the University. During the current year he will have the general charge of the exhibition to be made by the University at the Chicago Fair.

In accordance with suggestions made by a Committee of the Board of Overseers, water closets of the best sort were put into Hollis, Stoughton and Divinity Halls during the past Summer, and the men's closets were removed from the basement of Memorial Hall, and placed in an underground vault quite outside of the building, and ventilated into the open air. In the care of their buildings the Corporation take every sanitary precaution which is recommended by experts, and adopt any new measures which are likely to render the buildings safer for those who inhabit or use them. The cases of sickness or death among the students in Cambridge are extraordinarily few; no epidemic or contagious disease of a serious character has broken out among them for many years; and sporadic cases originating in Cambridge are rare.

The Treasurer's statement shows that the gifts made to the University during the year 1891–92 amounted to $516,532.20. The Corporation's investments in real estate have been in-

creased by nearly $1,000,000, their investments in railroad bonds and in corporation notes having been simultaneously reduced. All the departments of the University had surpluses except the combined account called University, College and Library, and the Veterinary School. There has not been a real deficit in the University, College and Library account before since the year 1886–87. It was due, as the Treasurer points out, to heavy outlays for instruction, and for the repair and alteration of buildings. As has already been mentioned in this Report, nearly $10,000 was spent during the year on improvements in Boylston Hall, and another large sum was spent in preparing the second story of Dane Hall for the use of the Department of Experimental Psychology. Considering the many expenditures which have been forced on the treasury by the recent extraordinary growth of the Graduate School and the College, the Corporation may be considered fortunate to have avoided deficits four years out of five since 1887. It is some compensation for the reduction of the "Stock Account" (a fund unrestricted as to both principal and income) by $6,432.88 as a result of the transactions of 1891–92, that the President and Fellows received during the same year from the estate of Edwin Conant the sum of $95,365.11, the income of which is unrestricted.

The attention of the Overseers is respectfully invited to the following reports on the several departments and scientific establishments, No abstract of any of these reports is given in the preceding pages, the topics dealt with by the President being different from those dealt with by the Deans and Directors who prepare the departmental reports, or being treated from a different point of view.

CHARLES W. ELIOT,
President.

CAMBRIDGE, 6 January, 1893.

REPORTS OF DEPARTMENTS.

THE FACULTY OF ARTS AND SCIENCES.

To the President of the University:

Sir, — I have the honor to present the following report upon the action of the Faculty of Arts and Sciences for the academic year 1891–92: —

The delegation of administrative powers to the Administrative Boards has continued to work well, securing the efficient and generally satisfactory transaction of a variety of business too great and too full of detail to be conducted by a single large body. That the disposition of particular cases always meets unamimous approval cannot be said of the determinations of any executive body, however constituted; but it is probably more nearly true of the action of the Administrative Boards than it ever was of the action of the Faculty upon similar business, and for the obvious reason that the body disposing of any given class of questions is now more constant in its composition, and its members are more certain to apply their judgment. With the present rapid increase of administrative business, and of general committee work, however, it becomes a serious question whether a further economy of force cannot be effected by some moderate reduction in the size of some of the bodies to which matters of detail are confided even under the present system.

One fragment of administration, more important from its relation to some questions of University policy than from its absolute magnitude, the Faculty preferred during the last year to take into their own hands. The examination of individual cases involving in any manner the shortening of the College course, which by a natural arrangement would have belonged to the Administrative Board of Harvard College, the Faculty referred to a standing committee, with directions to report upon the details of every application, and upon these reports the Faculty itself has acted. In disposing of the moderate number of cases which have gone through this process, the Faculty, apparently following the principle that an application to graduate after an exceptionally short residence must be supported by scholarly merit or necessity on the part of the applicant, has kept under its own observation all that relates to this vexed subject and

has pursued consistently a cautious policy, with little or no division of opinion.

The statement of the courses of instruction provided by the Faculty is given herewith, in the same form as last year, showing the hours of regular attendance for the student and the number of students in every course at the close of the year. It should be observed that a part of the courses in Semitic Languages and History, three courses in Philosophy, and two in History appear also as courses in the Divinity School, and that the number of Divinity students in attendance upon them, not given in this table, may be found by reference to the Report of the Dean of the Divinity Faculty.

COURSES OF INSTRUCTION, 1891–92.*

SEMITIC LANGUAGES AND HISTORY.

For Graduates and Undergraduates: —

1. Professor Lyon and Mr. Reisner. — Hebrew. — Davidson's Introductory Hebrew Grammar. — Explanation of parts of Genesis and of the Psalm-book. 3 hours. 2 Gr., 1 Se., 1 Ju., 2 So. Total 6.

6. Professor Lyon. — Babylonian-Assyrian History from native sources, with comparison of the Greek and Roman writers. 1 hour. 2 Gr., 1 Se., 4 So. Total 7.

12. Professor Lyon. — History of Israel, political and social, from the period of the Judges until Ezra. 2 hours. 14 Se., 17 Ju., 6 So., 1 Fr., 2 Sp., 1 Sc. Total 41.

13. Professor Toy. — History of the Hebrew Religion, with comparison of other Semitic Religions. 2 hours. 2 Gr., 6 Se., 2 Ju., 1 So. Total 11.

16. Professor Toy. — History of prechristian Hebrew literature. 2 hours. 1st half-year. 2 Gr., 2 Ju. Total 4.

[15. Professor Toy. — Political and literary history of the Bagdad Califate. 1 hour. Omitted in 1891-92.]

14. Professor Toy. — Political and literary history of the Spanish Califate. 1 hour. 2 Gr., 4 Se., 3 Ju., 2 So., 1 Fr., 1 Sp. Total 13.

Primarily for Graduates: —

2. Professor Toy. — Hebrew (second course). — Syntax. — Driver's Hebrew Tenses. — Interpretation of parts of the Prophets and the Poetical Books. 2 hours. 1 Ju., 1 So. Total 2.

3[1]. Professor Lyon. — Classical Aramaic (Syriac). — Grammars of Nestle and Nöldeke. — Rödiger's Chrestomathy. — The Peshitto version of the New Testament. 2 hours. 1st half-year. 3 Gr., 1 So. Total 4.

* The classes of students in the several courses are designated as follows: Gr. for Graduate Student, Se. for Senior, Ju. for Junior, So. for Sophomore, Fr. for Freshman, Sp. for Special Student, Sc. for Scientific Student, Di. for Divinity Student, Law for Law Student, Me. for Medical Student.

3². Professor LYON. — Jewish Aramaic. — Kautzsch's Biblisch-Aramäische Grammatik. —Brown's Aramaic Method. — Interpretation of selections from the Targums, and from Daniel and Ezra. 2 hours. 2d half-year.
2 Gr., 1 So. Total 3.

4. Professor LYON and Mr. REISNER. — Assyrian. — Lyon's Assyrian Manual. — References to Delitzsch's Assyrian Grammar. — Delitzsch's Assyrische Lesestücke. 2 hours. 3 Gr., 1 So. Total 4.

5. Professor LYON. — Assyrian (second course). — Delitzsch's Assyrian Grammar. — The Cuneiform Inscriptions of Western Asia (interpretation of selections). 2 hours. 2 Gr. Total 2.

7. Professor TOY and Mr. REISNER. — Arabic. — Lansing's Grammar. — The Thousand and One Nights. 2 hours. 1 So. Total 1.

8. Professor TOY. — Arabic (second course). — Wright's Grammar. — Interpretation of parts of the Moallakāt, of Motenebbi and other poets, and of the Korān. 2 hours. 3 Gr. Total 3.

9. Professor TOY. — Ethiopic. — Dillmann's Grammatik and Chrestomathia. 1 hour.

[10. Professor TOY. — Phoenician. — Schröder's Phönizische Sprache. — Corpus Inscriptionum Semiticarum. 1 hour. Omitted in 1891-92.]

11. Professor TOY. — General Semitic Grammar. 1 hour.

INDO-IRANIAN LANGUAGES.

1. Professor LANMAN. — Sanskrit. — Sounds and inflexions (Whitney's Grammar). — Elementary composition and translation (Perry's Primer). — Reading of easy prose and verse (Lanman's Reader). 3 hours. 3 Gr. Total 3.

2. Professor LANMAN. — Sanskrit (second course). — Classical Sanskrit. — Selections from the Pañcatantra and Mahā-Bhārata, (Geiger's Manual and Böhtlingk's Chrestomathy). 3 hours. 1st half-year. 1 Gr., 1 Se. Total 2.

Primarily for Graduates: —

3. Professor LANMAN. — Sanskrit (third course). — Introduction to the language and literature of the Vedas. 3 hours. 2d half-year. 1 Gr. Total 1.

[4. Professor LANMAN. — Pāli. — The Sacred Books of Buddhism. 3 hours. Omitted in 1891-92.]

GREEK.

INTRODUCTORY LECTURES for Freshmen studying Greek (open to the public).

(1) Dr. MORGAN. — On Lysias and his Times.
(2) Professor GOODWIN. — On Socrates and Plato.
(3) Professor WRIGHT. — On Homer.
(4) Professor J. W. WHITE. — On the Greek Theatre and Dramatic Performances.

A. Dr. TARBELL. — Herodotus (selections). — Homer (selections from Books I.–XII. of the Iliad). — Reading at sight. 3 hours.
2 So., 16 Fr., 8 Sp. Total 26.

F. Dr. TARBELL. — Greek Prose Composition (elementary course). 3 hours a fortnight. 1 Ju., 1 So., 8 Fr. Total 10.

B. Dr. MORGAN. — Lysias (selections). — Plato (Apology and Crito). — Homer (selections from the Odyssey). — Euripides (Medea). — Reading at sight. 3 hours. 3 So., 38 Fr. Total 41.

C. Dr. MORGAN. — Lysias (selections). — Plato (Apology and Euthyphro). — Homer (selections from the Odyssey). — Aristophanes (Clouds). — Reading at sight. 3 hours. 28 Fr., 1 Sp. Total 29.

D. Professors J. W. WHITE and WRIGHT. — Lysias and Isocrates (selections). Plato (Apology and Laches). — Homer (selections from the Odyssey). — Euripides (Medea). — Aristophanes (Clouds). — Reading at sight. 3 hours. 4 So., 53 Fr., 1 Sp. Total 58.

E. Dr. MORGAN. — Greek Prose Composition (second course). — Goodwin's Moods and Tenses. 3 hours a fortnight. 2 So., 15 Fr., 1 Sp. Total 18.

1. Dr. MORGAN. — Lucian (selections). — Demosthenes (Philippics). — Plato (Protagoras). — Euripides (Iphigenia in Tauris). — Aristophanes (Acharnians). — Reading at sight. 3 hours. 1 Se., 3 Ju., 6 So., 1 Fr. Total 11.

2. Professor J. W. WHITE. — Aeschylus (Prometheus Bound). — Sophocles (Oedipus Tyrannus). — Thucydides (selections from Books VI. and VII.). — Aristophanes (Birds). — Collateral reading of the Plutus of Aristophanes. — Reading at sight. 3 hours. 2 Se., 2 Ju., 43 So. Total 47.

3. Professor WRIGHT. — Greek Prose Composition (third course). — Translation and original composition. — Oral exercises. 1 hour. 2 Se., 2 Ju., 16 So. Total 20.

6. Professor WRIGHT. — Demosthenes (On the Crown, with parts of the Embassy). — Aeschines (Against Ctesiphon, selections). — Lycurgus (Against Leocrates). — Aeschylus (Seven against Thebes). — Sophocles (Electra). — Aristophanes (Frogs). 3 hours. 1 Gr., 1 Se., 14 Ju. Total 16.

For Graduates and Undergraduates: —

7. Professor WRIGHT. — Greek Prose Composition (fourth course). — Written composition in the style of Demosthenes and of Plato, with studies of classical models. — Translation of selections of standard English (rhetorical and philosophical). 1 hour. 3 Gr., 8 Se., 6 Ju. Total 17.

[4. Professor J. W. WHITE. — The Comedies of Aristophanes, with lectures on the Scenic and Private Antiquities. 2 or 3 hours. Omitted in 1891–92.]

[12. Professor WRIGHT. — Three Centuries of Greek History (600–300 B.C.). — Studies in Institutions and in Biography. — Lectures, with collateral reading and theses. 3 hours. Omitted in 1891-92.]

8. Professor GOODWIN. — Plato (Republic). — Aristotle (Ethics, Books I.–IV. and X.). 3 hours. 5 Gr., 10 Se., 2 Ju. Total 17.

9 Professor GOODWIN. — Pindar (Olympian and Pythian Odes). 3 hours. 1st half-year. 6 Gr., 3 Se., 1 Ju. Total 10.

10. Professor J. W. WHITE. — The Life of the Ancient Athenians, described and illustrated by the aid of the Literature and of the Monuments. 3 hours. 7 Gr., 25 Se., 39 Ju., 28 So., 6 Fr., 1 Sp., 2 Sc. Total 108.

13. Dr. TARBELL. — History of Greek Architecture, Sculpture, and Painting. 3 hours. 1 Gr., 7 Se., 11 Ju., 2 So., 1 Sc. Total 22.

[11. Professor ALLEN. — History of Greek Literature. — Lectures, with direction of the students' private reading. 3 hours. Omitted in 1891–92.]

LATIN.

Primarily for Undergraduates : —

A. Mr. C. P. PARKER. — Cicero (selected orations). — Virgil. — Practice in reading at sight. 3 hours. 1 Ju., 13 Fr., 8 Sp., 1 Sc. Total 23.

F. Mr. C. P. PARKER. — Latin Composition (elementary course). — Collar's Practical Latin Composition. 3 hours a fortnight.
1 Se., 2 Ju., 5 Fr. Total 8.

B. Drs. HOWARD and HAYLEY. — Cicero (De Amicitia). — Livy (Books XXI. and XXII.). — Terence (Adelphoe and Andria). — Reading at sight. 3 hours. 1 Ju., 8 So., 60 Fr., 9 Sp. Total 78.

C. Drs. HOWARD and HAYLEY. — Cicero (De Amicitia). — Livy (Books I. and II.). — Terence (Phormio and Andria). — Reading at sight. 3 hours.
2 So., 67 Fr., 8 Sp., 1 Sc. Total 78.

D. (*Advanced Course for Freshmen.*) Dr. HOWARD. — Cicero (De Amicitia). — Livy (Books I. and II.). — Terence (Phormio and Heautontimorumenos). — Plautus (Menaechmi). — Reading at sight. 3 hours.
2 So., 39 Fr. Total 41.

E. Mr. C. P. PARKER. — Latin Composition (second course). 3 hours a fortnight. 2 Ju., 6 So., 20 Fr., 1 Sp. Total 29.

1. Professor LANE. — Horace (Odes and Epodes). — Tacitus (Histories; Dialogus). Reading at sight. 3 hours. 2 Se., 6 Ju., 41 So., 1 Fr. Total 50.

2. Mr. C. P. PARKER. — Tacitus (Dialogus; Germania; Agricola). — Horace (Odes and Epodes). — Reading at sight. 3 hours.
5 Ju., 22 So., 1 Fr., 1 Sp. Total 29.

3. Mr. C. P. PARKER. — Latin Composition (third course). 1 hour.
1 Gr., 1 Se., 3 Ju., 15 So., 2 Fr. Total 22.

4. Professor GREENOUGH. — Horace (Satires and Epistles). 3 hours.
5 Se., 14 Ju., 4 So., 1 Sp. Total 24.

[5. Professor GREENOUGH. — Ancient Philosophy, as set forth by Cicero (De Finibus; Academica). 3 hours. 1st half-year. Omitted in 1891-92.]

[10. Professor LANE. — Pliny (Letters). 3 hours. Half-year.
Omitted in 1891-92.]

For Graduates and Undergraduates : —

6[1]. Professor SMITH. — The Reign of Tiberius. — The Annals of Tacitus (Books I.–VI.) and Suetonius' Life of Tiberius, with lectures on the institutions of the early empire. 3 hours. 1st half-year.
3 Gr., 2 Se., 14 Ju. Total 19.

6[2]. Professor SMITH. — Roman Society in the first century. — The principal Satires of Juvenal, with selected Epigrams of Martial. 3 hours. 2d half-year. 3 Gr., 2 Se., 9 Ju., 1 So. Total 15.

7. Professor GREENOUGH. — Practice in Latin expression and style. — Study of selections from classical prose as models. — Translation into Latin prose. 1 hour. 3 Gr., 5 Se., 4 Ju. Total 12.

8[1]. Professor LANE. — Plautus. — Cicero (Brutus). 3 hours. 1st half-year.
7 Gr., 19 Se., 1 Ju. Total 27.

8[1]. Professor LANE. — Lucretius. — Catullus. 3 hours. 2d half-year.
4 Gr., 16 Se., 3 Ju. Total 23.

11. Professor SMITH. — History of Latin Literature. — Lectures, with direction of the student's private reading. 3 hours. 8 Gr., 1 Se. Total 9.

CLASSICAL PHILOLOGY.

Primarily for Undergraduates: —

1. Lectures by Instructors in the Department. — General introduction to Classical Philology. 3 hours. 1st half-year. 5 Se. 2 Ju., 15 So. Total 22.

Primarily for Graduates: —

Professor SMITH and Dr. TARBELL. — Seminary. 3 hours.

20. Professors GREENOUGH and LANMAN. — Greek and Latin Comparative Philology. 3 hours. 10 Gr. Total 10.

21. Professor WRIGHT. — Introduction to Greek Epigraphy and Palaeography. — Historical Inscriptions and Facsimiles of representative MSS. — Lectures and practical exercises. 3 hours. 6 Gr., 1 Se. Total 7.

22. Professor LANE. — Latin Grammar. — Quintilian (Book I.). — Aulus Gellius. — Latin Inscriptions (Allen's Early Latin Remnants). — Discussions of points of grammar, pronunciation, &c. 1 hour. 6 Gr., 4 Se. Total 10.

25. Professor GOODWIN. — The Poetics and parts of the Rhetoric of Aristotle, with studies of the Greek poets for illustration. 2 hours. 2d half-year.
9 Gr., 1 Se. Total 10.

23. Professor GOODWIN. — The Athenian Expedition to Sicily in 415–413 B.C. studied in connection with the Sixth and Seventh Books of Thucydides and other authorities on the history of Sicily. 2 hours. 2d half-year.
2 Gr., 1 Se. Total 3.

24. Professor GOODWIN. — The Constitutional History of Athens and the Judicial Process of the Athenian Courts. 2 hours. First half-year.
2 Gr., 1 Se. Total 3.

26. Professor GREENOUGH. — The private life of the Romans, chiefly as illustrated by works of art. — Study of special topics. 2 hours. 2 Gr. Total 2.

ENGLISH.

Primarily for Undergraduates: —

A. Professors A. S. HILL and BRIGGS, Dr. PHELPS, and Messrs. LATHROP, FLETCHER and HURLBUT. — Rhetoric and English Composition. — A. S. Hill's Rhetoric. — Lectures on Rhetoric and on English Literature. — Written exercises and oral discussions. 3 hours.
2 Se., 13 So., 339 Fr., 75 Sp., 26 Sc. Total 455.

B. Professor WENDELL, Dr. PHELPS, and Messrs. GATES, CAREY, LATHROP, and HURLBUT. — Twelve Themes. — Lectures and discussions of themes.
3 Se., 20 Ju., 326 So., 21 Fr., 17 Sp., 6 Sc. Total 393.

C. Messrs. FLETCHER, HIGHT, and DAVIS. — Forensics. — Lectures on Argumentative Composition. — A brief based on a master-piece of argumentative composition. — Five forensics, preceded by briefs. — Discussions of briefs and of forensics. 35 Se., 269 Ju., 8 So., 10 Sp., 4 Sc., 2 Law. Total 328.

12. Professor WENDELL and Dr. PHELPS. — English Composition. 3 hours.
1 Gr., 65 Se., 43 Ju., 1 So., 5 Sp., 1 Sc., 3 Law, 1 Me. Total 120.

[18. Argumentative Composition. — Eight forensics, preceded by briefs. — Lectures and conferences. Omitted in 1891-92.]

6. Professors TAUSSIG and HART, and Mr. HAYES. — Oral Discussion of Topics in Political Economy and History. 2 hours.
1 Gr., 17 Se., 1 Ju., 2 Law. Total 21.

10. Mr. HAYES. — Elocution. 2 hours.
2 Gr., 24 Se., 30 Ju., 4 So., 1 Fr., 9 Sp., 1 Me. Total 71.

3[1]. Professor CHILD. — Anglo-Saxon. — Sweet's Anglo-Saxon Reader. 3 hours. 1st half-year. 18 Gr., 4 Se., 6 Ju., 4 So. Total 32.

[11. Professor CHILD. — English Literature. — Bacon. — Milton. 3 hours. Omitted in 1891-92.]

[7. Professor A. S. HILL. — English Literature of the Eighteenth Century. 1 hour. Omitted in 1891-92.]

8. Professor A. S. HILL. — English Literature. — Poets of the Nineteenth Century. 2 hours. 1st half-year.
3 Gr., 38 Se., 33 Ju., 23 So., 1 Fr., 6 Sp. Total 104.

9. Mr. GATES. — English Literature. — Prose Writers of the Nineteenth Century. 1 hour. 5 Gr., 10 Se., 23 Ju., 35 So., 1 Fr., 10 Sp., 1 Law. Total 85.

For Graduates and Undergraduates : —

5. Professor A. S. HILL. — English Composition (advanced course). 3 hours.
5 Gr., 17 Se., 2 Ju., 1 Sp. Total 25.

1. Professor KITTREDGE. — English Literature. — Chaucer. 3 hours.
11 Gr., 5 Se., 5 Ju., 2 So. Total 23.

2. Professor CHILD. — English Literature. — Shakspere. 3 hours.
8 Gr., 24 Se., 32 Ju., 16 So., 4 Fr., 7 Sp. Total 91.

13. Mr. FLETCHER. — Literary Criticism in England since the Sixteenth Century. 1 hour. 4 Gr., 9 Se., 3 Ju., 2 So., 1 Sp., 1 Law. Total 20.

Primarily for Graduates : —

[19. Professor KITTREDGE. — Historical English Grammar. 3 hours. 2d half-year. Omitted in 1891-92.]

[16. Professor BRIGGS. — History and Principles of English Versification. 1 hour. Omitted in 1891-92.]

3[2]. Professor KITTREDGE. — Anglo-Saxon Poetry. 3 hours. 2d half-year.
17 Gr., 1 Se., 4 Ju., 3 So. Total 25.

[4. Professors CHILD and KITTREDGE. — Early English. — Old English literature from 1200 to 1450. — Mätzner's Altenglische Sprachproben. 3 hours. Omitted in 1891-92.]

[14. Mr. BAKER. — English Literature. — The Drama from the Miracle Plays to the Closing of the Theatres. 1 hour. Omitted in 1891-92.]

17. Professor WENDELL. — English Literature of the Elizabethan period. 1 hour. 6 Gr., 4 Se., 1 Sp., 1 Law. Total 12.

15. Professor BRIGGS. — English Literature of the Seventeenth Century. 2 hours. 2d half-year. 18 Gr., 4 Se., 10 Ju., 3 So., 1 Sp. Total 31.

GERMAN.

Primarily for Undergraduates: —

A. Professor SCHILLING, Mr. NICHOLS and Dr. POLL. — Elementary Course. — Grammar. — Translation from German into English, and elementary exercises in translating into German. 3 hours.
1 Gr., 4 Se., 4 Ju., 6 So., 122 Fr., 29 Sp., 18 Sc., 1 Law. Total 185.

B. Dr. POLL. — Elementary Course. — Grammar. — Composition. — Translation and reading at sight. — Selections in Prose and Poetry. 5 hours.
1 Gr., 3 Se., 1 Ju., 1 So., 28 Fr., 5 Sp., 3 Sc., 2 Law, 3 Di. Total 46.

C. Mr. NICHOLS and Dr. POLL. — Intermediate Course. — Grammar. — Composition. — Translation and reading at sight. — Selections from the writers of the Eighteenth and Nineteenth Centuries. 3 hours.
1 Se., 2 Ju., 12 So., 81 Fr., 6 Sp., 4 Sc., 2 Di. Total 108.

1*a*. Professor BARTLETT. — Writers of the Nineteenth Century. — German Prose, Poetry, and Drama. — Composition. — Reading at sight. 3 hours.
1 Se., 2 Ju., 34 So., 2 Fr., 5 Sp., 3 Sc. Total 47.

1*b*. Professor VON JAGEMANN and MR. NICHOLS. — German Prose. — Subjects in History and Biography. — Composition. — Reading at sight. 3 hours.
5 Se., 7 Ju., 45 So., 10 Fr., 5 Sp., 4 Di. Total 76.

1*c*. Dr. ROBINSON. — German Prose. — Subjects in Natural Science. — Reading at sight. 3 hours. 5 Se., 7 Ju., 8 So., 10 Fr., 1 Sp., 8 Sc. Total 39.

E. Professor SCHILLING and Dr. POLL. — German Grammar and practice in writing German. 1 hour. 4 Se., 11 Ju., 17 So., 7 Fr., 1 Sp., 3 Sc. Total 43.

2. Professor FRANCKE. — Lessing and the German Drama. — Practice in writing German. 3 hours. 1 Se., 10 Ju., 19 So., 13 Fr., 2 Sp., 1 Sc. Total 46.

3. Professor SCHILLING. — Schiller and his Contemporaries. — Practice in writing German. 3 hours. 1 Se., 13 Ju., 10 So., 9 Fr., 1 Sp., 2 Sc. Total 36.

4. Professor VON JAGEMANN. — Goethe and the Romantic School. — Practice in writing German. 3 hours.
4 Se., 23 Ju., 25 So., 17 Fr., 4 Sp., 2 Sc. Total 75.

6. Professor SCHILLING. — German Prose (advanced course). — Subjects in History, Literature and Philosophy. — Reading at sight. 2 hours.
2 Gr., 2 Se., 3 Ju., 8 So., 1 Sp. Total 16.

5. Professor FRANCKE. — General History of German Literature. — Lectures, with collateral reading. 3 hours.
1 Gr., 7 Se., 10 Ju., 6 So., 2 Fr., 1 Sp. Total 27.

For Graduates and Undergraduates: —

8. Professor VON JAGEMANN. — Nibelungenlied. — Kudrun. — Iwein. — Parzival. — Walther von der Vogelweide. — Translation into Modern German. — Lectures and theses. 2 hours. 4 Gr., 5 Se., 2 Ju., 2 So., 2 Fr. Total 15.

9. Professor FRANCKE. — German Literature and Art during the Era of the Reformation. — Luther. — The Humanists. — Hans Sachs. — Holbein. — Dürer. — Lectures, reading, and theses. 3 hours. 1st half-year.
1 Gr., 3 Se., 4 Ju., 2 So., 1 Law. Total 11.

[10. Professor FRANCKE. — Literary and aesthetic criticism during the classic period of German Literature. — Lectures, reading, and theses. 3 hours. 1st half-year. Omitted in 1891-92.]

11. Professor FRANCKE. — The political tendencies in German Literature of the Nineteenth Century. — The Poets of the Wars of Liberation. — Heine, Gutzkow, Freiligrath. — The Revolution of 1848. — The Struggle for National Consolidation. — Lectures, reading, and theses. 3 hours. 2d half-year. 1 Gr., 5 Se., 5 Ju., 3 So. Total 14.

Primarily for Graduates: —

20*a*. Professor FRANCKE. — Critical Study of selected topics in the History of German Literature. 1 Gr. Total 1.

GERMANIC PHILOLOGY.

Primarily for Graduates: —

[12. Professor VON JAGEMANN. — Gothic. 1 hour. Omitted in 1891-92.]

13. Professor KITTREDGE. — Icelandic (Old Norse). — Selections from the Sagas and the Elder Edda. 3 hours. 5 Gr. Total 5.

14. Professor VON JAGEMANN. — Old Saxon. 1 hour. 4 Gr. Total 4.

15. Professor VON JAGEMANN. — Old High German. 1 hour. 3 Gr. Total 3.

[16. Professor KITTREDGE. — Germanic Mythology. 3 hours. 1st half-year. Omitted in 1891-92.]

[17. Professor VON JAGEMANN. — Middle High German (advanced course). — Critical study of a text. 1 hour. Omitted in 1891-92.]

[18. Professor VON JAGEMANN. — Historical Grammar. — Introduction to the study of Germanic Philology. 1 hour. Omitted in 1891-92.]

19. Professor FRANCKE. — The Faust legend from Marlowe to Goethe. 1 hour. 4 Gr. Total 4.

FRENCH.

Primarily for Undergraduates: —

A. Professor DE SUMICHRAST, Dr. MARCOU, and Mr. HENCKELS. — (Elementary course). — French Prose. — Chardenal's First and Second French Courses. 3 hours.
4 Gr., 2 Se., 4 Ju., 9 So., 40 Fr., 39 Sp., 20 Sc., 2 Law, 1 Di. Total 121.

1*a*. Professor DE SUMICHRAST, Dr. MARCOU, Mr. DANION, and Mr. HENCKELS. — Grammar, reading, and composition. — Dumas. — About. — George Sand. — Sandeau. — La Fontaine. 3 hours.
6 Se., 5 Ju., 20 So., 98 Fr., 14 Sp., 5 Sc. Total 148.

1*b*. Professor SANDERSON. — Reading at sight of French Prose. — Grammar. — Translation from French to English and from English to French. 3 hours.
3 Se., 6 Jr., 13 So., 36 Fr., 8 Sp., 9 Sc., 1 Law. Total 76.

2. Professor SANDERSON. — French Prose and Poetry. — La Fontaine. — Corneille. — Racine. — Molière. — Beaumarchais. — Alfred de Musset. — Balzac. — Historical Grammar. — Composition. 3 hours.
9 Se., 15 Ju., 66 So., 43 Fr., 4 Sp., 3 Sc. Total 140.

3. Mr. DANION. — Practice in writing and speaking French (elementary course). 2 hours. 1 Se., 8 Ju., 14 So., 8 Fr., 6 Sp. Total 37.

4. Professor DE SUMICHRAST and Mr. HENCKELS. — Practice in writing and speaking French (intermediate course). 2 hours.
1 Se., 13 Ju., 11 So., 8 Fr., 4 Sp. Total 37.

5. Dr. MARCOU. — Practice in writing and speaking French (advanced course). — Oral discussions. 2 hours. 5 Se., 3 Ju., 3 So., 3 Fr., 1 Sc. Total 15.

6. Professors BÔCHER and DE SUMICHRAST. — General view of French Literature. — Théâtre classique. — Bossuet. — Voltaire. — Rousseau. — Victor Hugo. — Lectures, readings, and themes. 3 hours.
1 Gr., 10 Se., 23 Ju., 30 So., 6 Fr., 4 Sp., 1 Sc. Total 75.

For Graduates and Undergraduates : —

7. Mr. DANION. — French Literature in the Nineteenth Century. — Lectures, themes, and collateral reading. 3 hours.
2 Gr., 11 Se., 8 Ju., 1 So. Total 22.

[8. French Literature in the Eighteenth Century. — Lectures, themes, and collateral reading. 3 hours. Omitted in 1891–92.]

9. Professors BÔCHER and DE SUMICHRAST. — French Literature in the Seventeenth Century. — Lectures, themes, and collateral reading. 3 hours.
8 Se., 11 Ju., 6 So., 2 Fr., 1 Sp. Total 28.

[10. Professors BÔCHER and DE SUMICHRAST. — French Literature in the Sixteenth Century. — Lectures, themes, and collateral reading. 3 hours.
Omitted in 1891–92.]

Primarily for Graduates : —

11. Dr. MARCOU. — French Literature from the Thirteenth to the end of the Fifteenth Century. — Lectures, themes, and collateral reading. 3 hours.
3 Se., 1 Ju. Total 4.

[12. Dr. MARCOU. — French Literature from the invasion of the barbarians to the Thirteenth Century. — Lectures, themes, and collateral reading. 3 hours.
Omitted in 1891–92.]

ITALIAN.

Primarily for Undergraduates : —

1. Professor SHELDON. — Elements of Grammar. — Selections from modern authors. — Elementary exercises in writing Italian. 3 hours.
4 Gr., 8 Se., 14 Ju., 6 So., 10 Fr., 4 Sp., 1 Law. Total 47.

2. Professor SHELDON. — Literature of the Fifteenth and Sixteenth Centuries. — Torquato Tasso. — Ariosto. — Machiavelli. — Pulci. — Reading at sight. — Syntax and prose composition, with reading of modern texts. 3 hours.
1 Ju., 3 So. Total 4.

Primarily for Graduates : —

[3. Professor NASH. — "Il Trecento" (selections from Boccaccio, Petrarca, Dante). — Early Italian (Nannucci's Manuale della Letteratura del Primo Secolo). — Outline of the History of Italian Literature. — Composition. 3 hours. Omitted in 1891–92.]

4. Professor NORTON. — Literature and the Fine Arts in Italy during the Middle Ages and the Renaissance, with special study of Dante. 3 hours.
3 Gr., 5 Se., 2 Ju., 1 Sp. Total 11.

SPANISH.

Primarily for Undergraduates : —

1. Professors NASH and MARSH. — Elements of Grammar. — Gil Blas. — El Eco de Madrid. — Elementary exercises in writing Spanish. 3 hours.
2 Gr., 23 Se., 54 Ju., 42 So., 27 Fr., 5 Sp., 9 Sc., 1 Law. Total 163.

2. Professor NASH. — Modern Literature (novels, plays, etc.). — Reading at sight. — Advanced Grammar (Syntax). — Conversation. — Prose composition. 3 hours. 5 Se., 5 Ju., 13 So., 3 Fr. Total 26.

Primarily for Graduates : —

3. Literature of the Sixteenth and Seventeenth Centuries (selections from Calderon, Lope de Vega, and Cervantes). — Early Spanish (the Poem of the Cid). — Outline of the History of Spanish Literature (lectures, with collateral reading). 3 hours. 2 Se. Total 2.

ROMANCE PHILOLOGY.

Professor SHELDON. — Six lectures introductory to the comparative study of the Romance languages.

Primarily for Graduates : —

2. Professor SHELDON. — Phonetics, with special reference to the explanation of sound-changes in the Romance languages. 2 hours. 2d half-year.
3 Se. Total 3.

3. Professor SHELDON. — Old French. — Phonology and Inflexions. — The oldest texts. — La Chanson de Roland. — Joinville. — Chrétien de Troies. — Aucassin et Nicolette. 2 hours. 4 Gr., 1 Se. Total 5.

[4. Professor SHELDON. — Provençal. — Language and Literature, with selections from the poetry of the Troubadours. 2 hours. 2d half-year.
Omitted in 1891-92.]

5. Professor SHELDON. — Low Latin. 2 hours. 1st half-year.
2 Se., 1 Ju. Total 3.

[6. Professor SHELDON. — Old French Dialects, with special reference to Anglo-Norman. 2 hours. Omitted in 1891-92.]

7. Professor SHELDON. — The French Element in English. 2 hours.
1 Gr., 1 Se., 2 Ju. Total 4.

COMPARATIVE LITERATURE.

For Graduates and Undergraduates : —

1. Professor MARSH. — The History of Classical Learning in Europe from the Fifth to the Fifteenth Century, considered with regard to the relation of modern to ancient culture. — Lectures and Theses. 2 hours.
4 Gr., 1 Se. Total 5.

2. Professor MARSH. — Comparative European Literature in the Middle Ages, with especial reference to France and her influence. — Lectures and Theses. 3 hours. 4 Gr., 2 Se., 1 So. Total 7.

PHILOSOPHY.

Primarily for Undergraduates: —

INTRODUCTORY COURSE.

1. Professors PALMER, JAMES and ROYCE. — General Introduction to Philosophy. — Logic, Psychology, and Metaphysics. — Jevons' Elementary Lessons in Logic. — James's Outlines of Psychology. — Royce's Spirit of Modern Philosophy. 3 hours.
17 Se., 60 Ju., 67 So., 7 Fr., 21 Sp., 3 Sc., 1 Law. Total 176.

For Graduates and Undergraduates: —

SYSTEMATIC COURSES.

2. Professor JAMES. — Psychology. — James's Principles of Psychology. — Recitations, theses, lectures, and illustrative experiments. 3 hours.
9 Gr., 31 Se., 14 Ju., 2 So., 1 Fr., 5 Sp., 1 Sc., 2 Di. Total 65.

3. Professor ROYCE. — Cosmology. — Discussion of the Principal Problems of the Philosophy of Nature, with special reference to the modern doctrine of Evolution. — Lectures and theses. 3 hours.
10 Gr., 19 Se., 8 Ju., 1 So., 4 Sp., 3 Di. Total 45.

4. Professor PALMER. — Ethics. — The Theory of Morals, considered constructively. — Lectures, theses, and private reading. 3 hours.
2 Gr., 23 Se., 13 Ju., 1 So., 3 Sp., 4 Di. Total 46.

[5. Professor F. G. PEABODY. — The Ethics of the Social Questions. — The questions of Charity, Divorce, the Indians, Temperance, and the various phases of the Labor Question (Socialism, Communism, Arbitration, Coöperation, etc.), as problems of practical Ethics. — Lectures, essays, and practical observations. 3 hours. Omitted in 1891–92.]

6. Professor EVERETT. — The Psychological Basis of Religious Faith. 1 hour.
2 Gr., 6 Se., 1 Ju., 1 Sp. Total 10.

7. Professor EVERETT. — The Content of Christian Faith. — Lectures and essays. 3 hours. 1 Sp. Total 1.

HISTORICAL COURSES.

10. Dr. SANTAYANA. — Descartes, Spinoza, and Leibnitz. — Lectures, private reading, discussion, and theses. 3 hours. 1 Gr., 5 Se. Total 6.

11. Dr. SANTAYANA. — English Philosophy from Hobbes to Hume. — Lectures, theses, and private reading. 3 hours. 2 Gr., 9 Se., 2 Ju., 2 So. Total 15.

12. Professor ROYCE. — The History of German Thought from 1770–1830. — Kant's Critical Philosophy. — Fichte. — Schelling. — Hegel. — Lectures, theses, and private reading. 3 hours. 8 Gr., 7 Se., 1 Ju. Total 16.

Primarily for Graduates: —

13. Professor EVERETT. — Comparative Religion. — Studies in the Comparative History of Religions, particularly the Vedic religion, the Hindu Philosophies, Buddhism, Mazdaism, and the Chinese religions. 2 hours.
2 Gr., 6 Se., 3 Ju., 1 Sp. Total 12.

[14. Professor F. G. PEABODY. — The Philosophy of Religion; its rise, problem, and results. — Pfleiderer's Philosophy of Religion. — Caird's Philosophy of Religion. — Lectures and a thesis. 1 hour. Omitted in 1891–92.]

COURSES OF RESEARCH.

20*a*. Professor JAMES. — Psychological Seminary. — Laboratory exercises and special investigations for advanced students.

12 Gr., 3 Di., 1 Law, 1 Me. Total 17.

20*b*. Professor ROYCE. — Metaphysical Seminary. — Subject for the year: The Development of the Hegelian System. — Hegel's Logic or Phenomenology. — Lectures, papers, and original research. 2 hours. 5 Gr., 1 Sc. Total 6.

20*d*. Professor PALMER. — Questions in Ethics for individual investigation.

3 Gr., 2 Di. Total 5.

20*e*. Dr. SANTAYANA. — Studies in Scholastic Philosophy. 2 hours.

2 Se. Total 2.

POLITICAL ECONOMY.

Primarily for Undergraduates: —

1. Professor TAUSSIG, Mr. COLE, and Mr. CUMMINGS. — First half-year: Mill's Principles of Political Economy. 3 hours.

Second half-year: —

Division *A* (Theoretical): Mill's Principles of Political Economy. — Cairnes's Leading Principles of Political Economy. 3 hours.

Division *B* (Descriptive): Lectures on Finance, Labor and Capital, Coöperation. — Hadley's Railroad Transportation. — Dunbar's Chapters on Banking. 3 hours.

1 Gr., 47 Se., 102 Ju., 91 So., 7 Fr., 34 Sp., 4 Sc., 2 Law. Total 288.

4. Mr. COLE. — Economic History of Europe and America since the Seven Years' War. — Lectures and written work. 3 hours.

35 Se., 40 Ju., 40 So., 1 Fr., 12 Sp., 3 Sc., 1 Law. Total 132.

For Graduates and Undergraduates: —

2. Professor TAUSSIG. — Economic Theory. — Examination of selections from leading writers. 3 hours.

9 Gr., 17 Se., 8 Ju., 1 So., 1 Fr., 2 Sp. Total 38.

3. Mr. CUMMINGS. — The Principles of Sociology. — Development of the Modern State, and of its Social Functions. 3 hours.

8 Gr., 9 Se., 6 Ju., 1 Sp., 1 Di. Total 25.

5. Professor TAUSSIG. — Railway Transportation. — Lectures and written work. 3 hours. 2d half-year.

3 Gr., 22 Se., 10 Ju., 1 So., 4 Sp. 2 Law. Total 42.

6. Professor TAUSSIG. — History of Tariff Legislation in the United States. 3 hours. 1st half-year.

7 Gr., 32 Se., 13 Ju., 2 So., 7 Sp., 3 Law. Total 64.

8. Professor DUNBAR. — History of Financial Legislation in the United States. 3 hours. 2d half-year. 7 Gr., 22 Se., 11 Ju., 2 So., 6 Sp., 2 Law. Total 50.

7. Professor DUNBAR. — First half-year: The Theory and Methods of Taxation, with special references to local taxation in the United States. 3 hours.

2 Gr., 20 Se., 8 Ju. Total 30.

Second half-year: —

Banking, and the History of the leading Banking Systems. 3 hours.

2 Gr., 22 Se., 10 Ju., 1 So., 2 Sp., 1 Di. Total 38.

Primarily for Graduates: —

COURSES OF RESEARCH.

20. Professors DUNBAR and TAUSSIG. — Special topics in Economic Theory and History. 5 Gr., 2 Se. Total 7.

HISTORY.

For Undergraduates: —

1. Professor CHANNING. — Mediaeval and Modern European History (introductory course). 3 hours. 3 Ju., 41 So., 155 Fr., 50 Sp., 7 Sc. Total 256.

2. Professor MACVANE. — Constitutional Government (elementary course). 3 hours. 1st half-year. 1 Se., 17 Ju., 102 So., 72 Fr., 33 Sp., 5 Sc. Total 230.

[3. Mr. BENDELARI. — Roman History to the reign of Diocletian. 3 hours. Omitted in 1891–92.]

4. Professor EMERTON. — The Middle Ages, from Charlemagne to Dante. — Formation of the European States. — The Holy Roman Empire. — The Roman Papacy as the controlling force in European life. 3 hours. 2d half-year. 2 Gr., 5 Se., 19 Ju., 60 So., 7 Fr., 6 Sp., 1 Sc., 4 Di. Total 104.

5. Mr. BENDELARI. — History of Western Europe from the Germanic Invasions to the Treaty of Verdun. 3 hours. 2 Gr., 2 Se., 1 Ju., 2 So. Total 7.

[6. Professor EMERTON. — The First eight Christian centuries. — The Conflict of Christianity with Paganism. — Origin and development of the Roman Primacy to its Alliance with the Frankish State. — The Germanic nations as the basis of a new Christian civilization. 2 hours. Omitted in 1891–92.]

7. Professor EMERTON. — The Era of the Reformation in Europe from the rise of Italian Humanism to the close of the Council of Trent (1350–1563). 2 hours. 6 Gr., 3 Se., 5 Ju., 7 So., 1 Fr., 2 Sp. Total 24.

8. Dr. SNOW. — History of France to the reign of Louis XIV., with especial reference to Institutions. 3 hours. 4 Ju., 1 So. Total 5.

9. Dr. GROSS. — Constitutional History of England to the Sixteenth Century. 3 hours. 2 Gr., 16 Se., 14 Ju., 6 So., 2 Sp. Total 40.

11. Mr. BENDELARI. — European History during the Seventeenth Century and the first half of the Eighteenth. 3 hours. 6 Se., 19 Ju., 12 So., 1 Fr., 4 Sp. Total 42.

12. Professors MACVANE and CHANNING. — European History from the Middle of the Eighteenth Century. 3 hours. 4 Gr., 24 Se., 48 Ju., 54 So., 4 Fr., 6 Sp. Total 140.

10. Professor CHANNING. — American History (to 1783). 3 hours. 1 Gr., 19 Se., 36 Ju., 38 So., 4 Fr., 4 Sp., 2 Sc. Total 104.

13. Professor HART. — Constitutional and Political History of the United States (1783–1865). 3 hours. 6 Gr., 30 Se., 51 Ju., 28 So., 1 Fr., 12 Sp., 1 Sc., 1 Law. Total 130.

15. Dr. SNOW. — Elements of Public International Law. — History of Treaties. 3 hours. 3 Gr., 29 Se., 9 Ju., 1 So., 2 Sp., 1 Law. Total 45.

Primarily for Graduates: —

21. Mr. BENDELARI. — Early Mediaeval Institutions. 4 hours. 1 Gr. Total 1.

22. Dr. GROSS. — The Sources and Literature of English Constitutional History. 1 hour. 1 Gr., 1 Se., 1 Law. Total 3.

23. Dr. SNOW. — History of the Government and Institutions of France to the reign of Louis XIV. 3 hours. 1 Gr. Total 1.

25. Mr. BENDELARI. — English Constitutional History from the Tudor period to the accession of George I. 4 hours. 3 Se., 1 Ju. Total 4.

26. Professor CHANNING. — History of American Institutions. 1 hour. 6 Gr., 2 Se., 1 Ju., 1 Law. Total 10.

27. Professor HART. — Government and Administration in the United States, national, state, and municipal. 2 hours. 6 Gr., 6 Se., 2 Ju., 1 So. Total 15.

28. Professors MACVANE and CHANNING. — History of Continental Europe (chiefly of France and Germany) since the Seven Years' War. 4 hours. 1st half-year. 4 Gr., 4 Se. Total 8.

29. Professors MACVANE and CHANNING. — Constitutional History of England since the accession of George I. 4 hours. 2d half-year. 4 Gr., 4 Se. Total 8.

30. Professor HART. — Federal Government. — Historical and comparative. 3 hours. 1st half-year. 2 Gr., 2 Se., 1 Ju., 1 So. Total 6.

31. Professor MACVANE. — Leading principles of Constitutional Law. — Selected cases, American and English. 3 hours. 2d half-year. 2 Gr., 8 Se., 2 Ju., 1 Law. Total 13.

32. Dr. SNOW. — The historical development of International Law. 2 hours. 2 Gr. Total 2.

COURSES OF RESEARCH.

20. I. Seminary in Mediaeval History.
(*a*) Professor EMERTON. — Church and State. 3 Gr. Total 3.
(*b*) Dr. GROSS. — Municipal History. 1 Se. Total 1.

II. Seminary in Modern History and Diplomacy.
(*d*) Professor MACVANE. — Social History. 5 Se. Total 5.
(*f*) Dr. SNOW. — Diplomatic History. 1 Gr., 3 Se. Total 4.

III. Professors CHANNING and HART. — Seminary in American History. 12 Gr., 3 Se. Total 15.

ROMAN LAW.

Mr. SCHOFIELD. — History and Institutes of Roman Law. — Institutes of Justinian, including the Law of Inheritance, and Selections from the Institutes of Gaius. 3 hours. 1 Gr., 19 Se., 10 Ju., 1 Sp. Total 31.

THE FINE ARTS.

Primarily for Undergraduates: —

1. Mr. MOORE. — Principles of Delineation, Color, and Chiaroscuro. — Lectures (once a week), with collateral reading. — Practice in drawing and in the use of water-colors. — Perspective. 3 hours. 2 Gr., 15 Se., 14 Ju., 15 So., 3 Fr., 10 Sp., 4 Sc., 1 Law. Total 64.

2. Mr. MOORE. — Principles of Design in Painting, Sculpture, and Architecture. — Lectures (twice a week), with collateral reading. — Practice in drawing and water-colors. 3 hours. 2 Gr., 6 Se., 2 Ju., 3 So., 2 Sp., 1 Sc. Total 16.

For Graduates and Undergraduates: —

[3. Professor NORTON. — Ancient Art. 3 hours. Omitted in 1891–92.]

4. Professor NORTON. — Roman and Mediaeval Art, with special study of the development of Gothic Architecture and of the Revival of Art in Italy in the Thirteenth Century. 3 hours.

14 Gr., 113 Se., 129 Ju., 52 So., 20 Sp., 3 Sc.. 1 Law. Total 332.

Primarily for Graduates: —

COURSES OF RESEARCH.

20. Professor NORTON. — Special topics in the History of the Fine Arts.

1 Gr. Total 1.

MUSIC.

For Graduates and Undergraduates: —

1. Professor PAINE. — Harmony. 3 hours.

1 Gr., 1 Se., 2 Ju., 3 So., 10 Fr., 1 Sp. Total 18.

2. Professor PAINE. — Counterpoint. 2 hours. 1 Gr., 3 Ju., 6 So. Total 10.

3. Professor PAINE. — History of Music, with analysis of the works of the great masters. 2 hours. 1 Gr., 2 Se., 7 Ju., 1 So. Total 11.

[7. Professor PAINE. — Instrumentation. 1 hour. Omitted in 1891–92.]

Primarily for Graduates: —

[5. Professor PAINE. — Canon and Fugue. 2 hours. Omitted in 1891–92.]

6. Professor PAINE. — Free Thematic Music. — Fugue in two voices. 2 hours.

3 Se., 4 Ju. Total 7.

MATHEMATICS.

Primarily for Undergraduates: —

A. Professor C. J. WHITE. — Logarithms. — Plane Trigonometry, with its applications to Surveying and Navigation. 3 hours. 1st half-year.

3 Se., 5 Ju., 28 So., 94 Fr., 9 Sp., 1 Sc. Total 140.

B. Professor C. J. WHITE. — Analytic Geometry (elementary course). 3 hours. 2d half-year. 2 Se., 1 Ju., 8 So., 65 Fr., 7 Sp., 10 Sc. Total 93.

C. Professor BYERLY. — Analytic Geometry (extended course). 3 hours.

1 Gr., 3 Se., 3 Ju., 9 So., 30 Fr., 4 Sp., 7 Sc. Total 57.

D. Dr. OSGOOD and Mr. BÔCHER. — Algebra. 3 hours. 1st half-year.

14 Se., 16 Ju., 17 So., 38 Fr., 11 Sp., 3 Sc. Total 99.

E. Dr. OSGOOD and Mr. BÔCHER. — Solid Geometry. 3 hours. 2d half-year.

5 Se., 11 Ju., 28 So., 47 Fr., 12 Sp., 6 Sc. Total 109.

1. Professor C. J. WHITE. — Spherical Trigonometry. — Applications of Spherical Trigonometry to Astronomy and Navigation. 2 hours. 1st half-year.

4 Se., 5 Ju., 2 So., 4 Fr., 1 Sc. Total 16.

2. Professor BYERLY. — Differential and Integral Calculus (first course). 3 hours. 4 Gr., 4 Se., 5 Ju., 31 So., 6 Fr., 3 Sp., 3 Sc. Total 56.

3. Mr. BÔCHER. — Analytic Geometry (higher course). 3 hours.

1 Gr., 2 Se., 1 Ju., 1 So., 1 Fr. Total 6.

4. Dr. OSGOOD. — The Elements of Mechanics. 3 hours.

3 Gr., 3 Se., 3 Ju., 2 So., 1 Sp., 7 Sc. Total 19.

For Graduates and Undergraduates: —

5. Professor C. J. WHITE. — Differential and Integral Calculus (second course). 3 hours. 2 Gr., 3 Se., 5 Ju., 1 So. Total 11.

6. Professor J. M. PEIRCE. — Quaternions, with applications to Geometry and Mechanics. 3 hours. 5 Gr., 5 Se., 3 Ju., 1 Sp. Total 14.

12. Professor C. J. WHITE. — The Theory of Equations. 2 hours. 2d half-year. 2 Gr., 2 Se., 10 Fr., 1 Sc. Total 15.

[7. Professor J. M. PEIRCE. — Higher Plane Curves. 2 hours. Omitted in 1891-92.]

8. Professor BYERLY. — Analytic Mechanics. 3 hours. 5 Gr., 5 Se., 4 Ju. Total 14.

[9. Professor J. M. PEIRCE. — Quaternions, with applications to Geometry and Mechanics (second course, succeeding course 6). 3 hours. Omitted in 1891-92.]

10. Professors BYERLY and B. O. PEIRCE. — Trigonometric Series. — Introduction to Spherical Harmonics. — Potential Function. 3 hours. 7 Gr., 6 Se., 2 Ju., 1 Sc., 1 Law. Total 17.

13. Professor J. M. PEIRCE. — The Theory of Functions (introductory course). 3 hours. 7 Gr., 1 Se., 3 Ju. Total 11.

14. Dr. OSGOOD. — Higher Algebra. 3 hours. 2 Gr. Total 2.

Primarily for Graduates: —

11. Professor B. O. PEIRCE. — Hydrostatics. — Hydrokinematics. — Force Functions and Velocity-Potential Functions and their uses. 3 hours. 5 Gr., 1 Ju., 1 Law. Total 7.

[16. Professor BYERLY. — Problems in the Mechanics of Rigid Bodies. 2 hours. Omitted in 1891-92.]

17. Dr. OSGOOD. — The Elliptic Functions. 3 hours. 3 Gr. Total 3.

[15. Professor B. O. PEIRCE. — Wave Motion. 3 hours. Omitted in 1891-92.]

[18. Professors J. M. PEIRCE, BYERLY, and B. O. PEIRCE. — Finite Differences. — Theory of Numbers. — Calculus of Variations. — Least Squares. — Lectures by the students. 1 hour. Omitted in 1891-92.]

[19. The Theory of Invariants. Omitted in 1891-92.]

COURSES OF RESEARCH.

20*b*. Mr. BÔCHER. — Bessel's and Lamé's Functions. 2 Gr. Total 2.

20*d*. Professor J. M. PEIRCE. — Topics in Analytic Geometry. 1 Gr. Total 1.

ENGINEERING.

Primarily for Undergraduates: —

A. Dr. WILSON. — Practical Astronomy [for the use primarily of students in Engineering.] — Determination of time, latitude, and longitude. — Use of the sextant and astronomical transit. — Lectures, instrumental work, and computation. 3 hours. 2 Gr., 2 So., 1 Sc. Total 5.

1. Messrs. WAIT and JOHNSON. — Mechanical Drawing. — Descriptive Geometry. — Tinting, Isometric Drawing, Shades and Shadows, Perspective. 6 hours. 1 Gr., 8 Se., 2 Ju., 7 So., 2 Fr., 7 Sp., 21 Sc. Total 48.

2. Mr. WAIT. — Surveying, Plotting, and Topographical Drawing. — Johnson's Theory and Practice of Surveying. — Geodesy. 6 hours.
4 Gr., 1 Se., 2 Ju., 2 So., 1 Fr., 3 Sp., 9 Sc. Total 22.

3. Mr. JOHNSON. — Stereotomy. — Applications of Descriptive Geometry to constructions in stone. — Preparation of Models. — Investigation of Arches. 6 hours. 1 Se., 1 Sp., 6 Sc. Total 8.

4. Mr. WAIT. — Levelling. — Topographical Drawing. — Searle's Field Engineering. — Railroad Surveying, Location, and Construction. 6 hours.
1 Se., 2 Ju., 5 Sc. Total 8.

For Graduates and Undergraduates: —

5. Mr. JOHNSON. — Graphical Statics. — Mechanics of Construction. — Building Materials, and their application to Structures. 3 hours.
1 Se., 3 Sc. Total 4.

6. Mr. JOHNSON. — Applied Mechanics and Constructive Engineering. 5 hours.
2 Se., 3 Sc. Total 5.

[7^1. Professor ——. — Water Supply, and Sanitary Engineering. 3 hours. 1st half-year. Omitted in 1891–92.]

7^2. Mr. JOHNSON. — Practical Hydraulics and Hydraulic Engineering. 3 hours. 2d half-year. 2 Se., 3 Sc. Total 5.

8. Mr. WAIT. — Designing. — Discussions of existing structures and working out of projects. 6 hours. 1 Se., 2 Sc. Total 3.

PHYSICS.

Primarily for Undergraduates: —

A. Professors TROWBRIDGE, B. O. PEIRCE, and HALL. — Introductory Lectures, in the 2d half-year, designed especially for Freshmen, but open to all members of the University.

B. Professor HALL and Mr. CHAMBERLAIN. — Experimental Physics. — Lectures (once a week) and laboratory work (two hours). 3 hours.
9 Se., 11 Ju., 26 So., 40 Fr., 13 Sp., 20 Sc. Total 119.

C. Mr. SABINE and Mr. BUCKINGHAM. — Experimental Physics. — Measurements in Mechanics, Sound, Heat, Light, Electricity, and Magnetism. — Lectures and laboratory work (together six hours a week).
1 Gr., 1 Se., 3 Ju., 10 So., 25 Fr., 5 Sp., 17 Sc. Total 62.

1. Professor HALL. — General Descriptive Physics. — Lectures (twice a week) and laboratory work (two hours).
3 Se., 9 Ju., 11 So., 15 Fr., 2 Sp., 16 Sc. Total 56.

3. Professor B. O. PEIRCE, Dr. WILSON, and Mr. RICH. — Electrostatics, Electrokinematics, and parts of Electromagnetism. — Lectures (once a week) and laboratory work (six to eight hours a week).
4 Gr., 2 Se., 5 Ju., 11 So., 1 Sp., 6 Sc. Total 29.

4. Professor TROWBRIDGE. — Electrodynamics, Maguetism, and Electromagnetism. — Lectures (twice a week) and laboratory work.
3 Gr., 1 Se., 1 Ju., 1 So., 2 Sc. Total 8.

5. Professor TROWBRIDGE. — Light. — A general treatment of Optical Phenomena. — Lectures (once a week) and laboratory work. 5 Gr. Total 5.

6. Professor B. O. Peirce. — Thermodynamics. 2 hours. 1st half-year.
1 Gr., 5 Se., 2 Ju., 3 Sc. Total 11.

7. Professor Hall. — Heat Engines: the theory of their action and the principles of their economical operation, with practice in managing and testing them. — Lectures and laboratory work (six hours a week). 2d half-year.
2 Se., 1 Sp. Total 3.

8. Professor Hall. — Dynamos: the theory of their action and the principles of their economical operation, with practice in managing and testing them. — Lectures and laboratory work (six hours a week). 1st half-year.
2 Gr., 2 Se., 2 Sc. Total 6.

Primarily for Graduates: —

9. Professor B. O. Peirce. — The Mathematical Theory of Electrostatics and Electrokinematics. 6 Gr. Total 6.

10. Professor Hall. — The Mathematical Theory of Electrodynamics and Electromagnetism. 1 Gr. Total 1.

Courses of Research.

20. Professor Hall. — Electromagnetism and Heat Conduction. 2 Gr. Total 2.

CHEMISTRY.

Primarily for Undergraduates: —

A. Professor Cooke. — Elementary Chemistry (lectures). 1 hour. 1st half-year. 11 So., 358 Fr., 42 Sp. Total 411.

B. Dr. Huntington. — Experimental Chemistry. — Lectures and laboratory work (two and a half, or if taken as a full course, five hours a week).
2 Se., 3 Ju., 8 So., 27 Fr., 10 Sp., 2 Sc. Total 52.

1. Professor Jackson. — General Descriptive Chemistry, including its applications in the arts, and embracing the scheme of the chemical elements. — Lectures (twice a week) and laboratory work (four hours).
8 Gr., 14 Se., 29 Ju., 29 So., 17 Fr., 6 Sp., 25 Sc. Total 128.

2*a*. Dr. Huntington. — 1st half-year: Mineralogy of common rocks, including a study of the characters and distribution of the mineral species constituting ordinary rock. — Second half-year: Metallic Ores, including blow-pipe assaying and the simpler methods of furnace assaying of gold and silver ores. — Lectures (three hours a week), and laboratory work.
1 Se., 5 Ju., 1 So., 1 Fr., 2 Sc. Total 10.

2. Dr. Huntington. — Systematic Mineralogy. — Lectures in the Mineral Cabinet (three hours a week) and practical exercises.
6 Gr., 7 Se., 10 Ju., 5 So., 5 Fr., 2 Sp., 18 Sc. Total 53.

3. Professor H. B. Hill. — Qualitative Analysis (chiefly laboratory work, about nine hours a week). 10 Se., 20 Ju., 10 So., 3 Fr., 9 Sc. Total 52.

4. Professors Cooke and H. B. Hill and Dr. Richards. — Quantitative Analysis (chiefly laboratory work, about nine hours a week).
2 Gr., 5 Se., 4 Ju., 3 So., 1 Sp., 5 Sc. Total 20.

For Graduates and Undergraduates: —

4*a*. Professors Cooke and H. B. Hill and Dr. Richards. — Quantitative Analysis (second course). — Laboratory work. 3 hours.
2 Gr., 1 Se., 1 Ju., 3 Sc. Total 7.

5. Professor H. B. Hill. — The Carbon Compounds. — Lectures (three times a week) and laboratory work (three to six hours a week).
3 Gr., 1 Se., 3 Ju., 4 Sc. Total 11.

8. Dr. Richards. — Chemical Philosophy. 1 hour.
2 Gr., 1 Se., 1 So., 1 Sc. Total 5.

Primarily for Graduates: —

6. Professor Cooke. — Advanced Problems in Inorganic Chemistry and Chemical Physics, including Molecular Weights and Volumes, Thermo-Chemistry, and Specific Refractive Power. — Lectures (three times a week) and laboratory work (six hours a week). 2 Gr., 2 Se., 1 Sc. Total 5.

7. Professor Cooke. — Crystallography and the Physics of Crystals. — Lectures and Practical Exercises. — Discussion and measurement of crystals. — Crystal Optics. 2 Se. Total 2.

Courses of Research.

20. (*a*) Professor Cooke. — Determination of Atomic Weights. 1 Gr. Total 1.
(*b*) Professor Jackson. — Aromatic Compounds. 5 Gr. Total 5.
(*c*) Professor H. B. Hill. — Organic Chemistry. 3 Gr. Total 3.
(*d*) Professor Jackson. — Inorganic Chemistry. 1 Ju. Total 1.
(*e*) Professor Cooke and Dr. Huntington. — Mineralogy. 1 Gr. Total 1.

BOTANY.

Primarily for Undergraduates: —

1. Professor Goodale. — Botany. — Lectures and laboratory practice. 3 hours. 2d half-year. 4 Gr., 19 Se., 27 Ju., 50 So., 55 Fr., 27 Sp., 21 Sc. Total 203.

2. Professor Thaxter. — Morphology of Plants. — Lectures and laboratory work. 3 hours. 1st half-year.
6 Gr., 10 Se., 7 Ju., 11 So., 2 Fr., 5 Sp., 4 Sc. Total 45.

For Graduates and Undergraduates: —

3. Mr. Ganong. — Botany (second course). — Lectures and laboratory practice. 3 hours. 3 Gr., 6 Se., 1 Ju., 3 So., 4 Sc. Total 17.

4. Professor Thaxter. — Cryptogamic Botany. — Lectures and laboratory work. 3 hours. 2d half-year. 4 Gr., 4 Se., 1 Ju., 2 So., 1 Fr., 2 Sc. Total 14.

Primarily for Graduates: —

Courses of Research.

20*a*. Professor Goodale. — Experimental Vegetable Physiology. — Systematic and Economic Botany. 7 Gr., 3 Se. Total 10.

20*b*. Professor Thaxter. — Structure and Development of Cryptogams.
1 Gr., 2 Sc. Total 3.

ZOÖLOGY.

Primarily for Undergraduates: —

1. Professor Mark. — Zoölogy. — Lectures and laboratory demonstrations. 3 hours. 1st half-year.
4 Gr., 13 Se., 13 Ju., 23 So., 23 Fr., 15 Sp., 21 Sc. Total 112.

2. Mr. Davenport. — Morphology of Animals. 3 hours. 2d half-year.
4 Gr., 11 Se., 10 Ju., 9 So., 2 Fr., 4 Sp., 5 Sc. Total 45.

For Graduates and Undergraduates: —

3. Mr. DAVENPORT. — Comparative Anatomy of Vertebrates. — Lectures and laboratory work. 3 hours. 4 Gr., 5 Se., 6 Ju., 1 So., 2 Sp., 1 Sc. Total 19.

4. Professor MARK and Dr. WOODWORTH. — Microscopic Anatomy. — Lectures and laboratory work. 3 hours. 1st half-year. 3 Gr., 3 Se., 1 Sp. Total 7.

5. Professor MARK. — Embryology of Vertebrates. — Lectures and laboratory work. 3 hours. 2d half-year. 3 Gr., 3 Se., 1 Sp. Total 7.

Primarily for Graduates: —

10. Dr. SLADE. — Comparative Osteology. 1 hour.
1 Gr., 1 Se., 2 Ju., 1 Sc. Total 5.

COURSES OF RESEARCH.

20*a*. Professor MARK. — Anatomy and Development of Animals.
6 Gr., 1 Se., 2 Sc. Total 9.

[20*b*. Professor HAGEN. — General Entomology. Omitted in 1891-92.]

GEOLOGY.

Primarily for Undergraduates: —

1. Professor DAVIS. — Meteorology. — Lectures, recitations, written exercises and laboratory work. 3 hours. 1st half-year.
7 Se., 10 Ju., 21 So., 18 Fr., 10 Sp., 10 Sc. Total 76.

2. Professor DAVIS. — Physical Geography. — Lectures, recitations, written exercises, and laboratory work. 3 hours. 2d half-year.
7 Se., 11 Ju., 22 So., 35 Fr., 14 Sp., 9 Sc. Total 98.

4. Professor SHALER. — Elementary Geology. — Lectures and special exercises. — Dana's Manual of Geology. 3 hours.
2 Gr., 26 Ju., 67 So., 73 Fr., 20 Sp., 25 Sc. Total 213.

5. Dr. HARRIS. — Elementary Geology. — Laboratory and field exercises, with occasional lectures. 4 hours.
2 Gr., 3 Se., 6 Ju., 15 So., 21 Fr., 7 Sp., 16 Sc. Total 70.

For Graduates and Undergraduates: —

8. Professors SHALER and DAVIS and Dr. WOLFF. — General Critical Geology. — Lectures, field work, and theses. 3 hours.
4 Gr., 4 Se., 14 Ju., 16 So., 5 Sp., 14 Sc. Total 57.

9. Dr. HARRIS. — Structural and Dynamical Geology of the stratified rocks. — Lectures, reading, and theses. 2 hours. 2 Gr., 1 Se., 1 Sp., 1 Sc. Total 5.

12. Dr. WOLFF. — Petrography. — Lectures, laboratory work, and theses. 2 hours. 7 Gr., 1 Se., 2 Ju., 6 Sc. Total 16.

14. Professor SHALER. — Palaeontology. — Lectures, laboratory work, and theses. 3 hours. 5 Gr., 4 Se., 2 Ju., 1 So. Total 12.

15. Professor SHALER. — Historical Geology. — Laboratory work and theses.
1 Se. Total 1.

18. Professor WHITNEY. — Economical Geology. Lectures, reading and theses. 2 hours. 8 Gr., 7 Se., 5 Ju., 1 So., 4 Sp., 2 Sc. Total 27.

Primarily for Graduates: —

COURSES OF RESEARCH.

20. Professor DAVIS. — Physical Geography and Meteorology (second course). — Lectures and reports. 2 hours. 4 Gr., 1 Se., 1 Ju., 1 Sc. Total 7.

22. Professors SHALER and DAVIS and Drs. WOLFF and HARRIS. — Advanced geological field work. Field and library work, with weekly conferences. 6 Gr., 3 Se., 3 Ju., 5 Sc. Total 17.

23. Dr. WOLFF. — Petrographical research in the field and laboratory (second course). 2 Gr., 3 Sc. Total 5.

24. Professor SHALER. — Palaeontology. 1 Gr. Total 1.

[25. Professor WHITNEY. — Mineral Veins and Metalliferous Deposits: their mode of occurrence, and theories of their origin. Lectures, reading and theses. 2 hours. Omitted in 1891–92.]

AMERICAN ARCHAEOLOGY AND ETHNOLOGY.

For Graduates: —

Professor PUTNAM. — Course of special training and research. 8 Gr. Total 8.

SUMMER COURSES OF INSTRUCTION.

Courses which may be counted for the degrees of A.B. or S.B: —

GERMAN.

S2. Professor BARTLETT. — Writers of the Nineteenth Century. — Lessing (Minna von Barhelm). — Schiller (Wilhelm Tell). — Goethe (Hermann und Dorothea). — Riehl (Der Fluch der Schönheit). — Freytag (Aus Neuer Zeit, chapter V.). — Selections in Prose and Poetry. — Translations at sight of Modern German prose. — Grammar and composition. 5 hours for 6 weeks. Half-course. 1 Gr., 2 So., 1 Me. Total 4.

ENGINEERING.

S1. Mr. WAIT. — Surveying, Plotting, and Topographical Drawing. — Johnson's Theory and Practice of Surveying. — Geodesy. 6 hours for 6 weeks. Half-course. 1 Se., 1 Sc. Total 2.

S2. Mr. WAIT. — Levelling. — Topographical Drawing. — Searle's Field Engineering. — Railroad Surveying, Location, and Construction. 6 hours for 6 weeks. Half-course. 1 Gr., 1 Sp., 1 Sc. Total 3.

S3. Mr. WAIT. — Draughting and Descriptive Geometry. — Problems in Geometrical Drawing. — Isometric Drawing. — Perspective. 6 hours for 6 weeks. Half-course. [For the degree of S.B. only.] 1 Sp. Total 1.

PHYSICS.

S2. Mr. SABINE. — Experimental Physics. — Measurements in Mechanics, Sound, Heat, Light, Electricity, and Magnetism. — Laboratory work. 6 hours for 6 weeks. Half-course. 2 So., 2 Sc. Total 4.

BOTANY.

S1. Vegetable Morphology and Physiology. — Laboratory work on Morphology and Histology. — Demonstrations on Physiology. — Lectures. 5 hours for 5 weeks. Half-course. 2 Se. Total 2.

GEOLOGY.

S1. Dr. HARRIS and Mr. KUMMEL. — Elementary course in general physical and structural Geology: at Cambridge. Lectures, laboratory and field-work. 5 hours for 6 weeks. Half-course. 3 Ju., 1 Fr., 1 Sc., 1 Law. Total 6.

S2. Dr. HARRIS and Mr. KUMMEL. — Advanced course in geological field-work: at Utica, N. Y., Catskill, N. Y., and Meriden, Conn. 6 weeks. Half-course. 1 Se., 1 Ju., 3 So., 4 Sc. Total 9.

S3. Professors SHALER and DAVIS and Dr. WOLFF. — Training in field-research, and in the methods of professional geological field-work, the results to be presented in a thesis: for advanced students. 6 weeks. Half-course. 1 Se., 1 Ju., 1 So. Total 3.

In the revision of the list of courses for the new academic year 1892–93, as it now appears in the University Catalogue, some changes of general classification were made, which, although changes of nomenclature only, appear to imply a more distinct recognition of community of interest between branches of study hitherto separately organized. The Departments of Latin and Greek, which for two years previously threw together a large body of graduate instruction under the title of Classical Philology, have now united all their resources under that general heading, with the usual sub-divisions, — *Primarily for Undergraduates*, *For Undergraduates and Graduates*, *Primarily for Graduates*, and with the appropriate courses in Greek and Latin arranged under each. The whole field of Classical languages and literature is thus treated as one, with no suggestion that Greece and Rome are the basis for a primary division, or for a natural limitation of the interest of either instructors or students. In the presentation of studies heretofore classified under History and Political Economy, a considerable change was also made, facilitated by the establishment of the Division of History and Political Science in the year 1890–91, and the organization in one body for many purposes, of two groups of instructors, previously standing apart. It had long been felt that under the head of History were included many courses which might more properly be classified as Politics, or under some similar title, that such subjects as Constitutional Law, International Law, and Roman Law were arbitrarily placed and even obscured, and that between much of the work in History and much of that in Political Economy the relations were too close to be ignored. An examination of the table of courses for 1891–92, accompanying this report, will show at once that the list of courses in History had become the repository for some courses for which no other general head could be found, giving as the result an unsystematic and ineffective statement of a body of work remarkable for its comprehensiveness, and the cor-

relation of the subjects covered by it. The rearrangement adopted for the current year classifies all of the courses existing under the Division of History and Political Science, under the three heads, — History, Government and Law, and Economics. Although the special departments in which the instructors are organized have not been altered, and so do not correspond to the nomenclature followed in the list of courses, the change as made points to a more systematic growth of the instruction in this wide field, and to a closer coöperation and mutual support among the instructors engaged in it. Moreover, as it is not the policy of the University to establish a distinct school of Political Science, the more orderly statement of the work done in History, Politics, and Economics has a peculiar and substantial importance, the actual range of that work easily bearing comparison with many far more ambitious programmes.

The courses of instruction offered by the Faculty of Arts and Sciences under the amended Statutes necessarily include the courses given in the Lawrence Scientific School, as well as those given in Harvard College and in the Graduate School. The disappearance of the Scientific Faculty was the nearly inevitable result of the identity of instructors and instruction, in the Scientific School and the College. The studies in the Scientific School had been arranged in five groups, all leading to the degree of Bachelor of Science, viz.: Civil and Topographical Engineering, Chemistry, Geology, Biology, and Electrical Engineering. Of the courses making up these groups for 1891–92 all except four were open to candidates in Arts as well as in Science, and all but two were included in the general Announcement of Courses provided by the Faculty. The two courses not so included, a double course in Elementary Mathematics, and a course in the Industrial Application of Electricity, both existing for the purposes of the Scientific School alone, have this year been included in the Announcement, so that in this respect the presentation of the work offered by the Faculty in Arts and Sciences is complete. In addition to these five groups of studies in the Scientific School, two others were established during the last year, — a general course in Science, intended for persons preparing to become teachers or laying a foundation for subsequent special work, and a course in Anatomy, Physiology, and Physical Training, — each covering four years and leading to the degree of Bachelor of Science. The first of these new groups is made up entirely by the combination of courses already established. Of the second group, one year (the third) is to be passed in the Medical School, and for the work set down for the years to be passed in Cambridge the nature of the general subjects required some special provision. Six courses were therefore established for the

current year to be counted only for the degree of Bachelor of Science, viz: —

Elementary Physiology and Hygiene of Common Life. *Half-course.* Dr. G. W. Fitz.
History of Physical Education. *Half-course.* Drs. Sargent and G. W. Fitz.
Physiology of Exercise. *Full course.* Dr. G. W. Fitz.
Anthropometry. *Half-course.* Dr. Sargent.
Applied Anatomy and Animal Mechanics. *Half-course.* Dr. Sargent.
Remedial Exercises. *Half-course.* Dr. G. W. Fitz.

For the future therefore the complete list of the courses offered by the Faculty will include all the instruction offered for candidates either in Arts or in Sciences; although a small minority of courses, from their special or technical character are not to be counted towards the degree in Arts, and only certain determinate groups of courses can be counted towards the degree in Science.

The Faculty also incorporated in their regular list of courses, under the head of Philosophy, the courses on Education and Instruction given by Professor Hanus, but not previously available for any degree. These comprise two half-courses, one on the History of Educational Theories and Practices, and the other on the Theory of Teaching, and a full course on the Organization and Management of Public Schools and Academies. The last of these, which includes work done in the actual inspection of schools and the study of school methods in operation, is open to all qualified students, but is not to be counted towards the degree of Bachelor of Arts.

Among the changes made in the statement of courses for 1892–93, as it appears in the University Catalogue and in the usual Announcement, it will be found that a considerable variety is given to the courses in Classical Philology when the lists for 1891–92 and 1892–93 are compared, by the alternation of subjects and by the reappearance of Professor Allen's courses. Under the head, Comparative Literature, Professor Marsh proposes two half-courses to be given in 1893–94, dealing with some of the origins and the growth of Mediæval Poetry, and extending the range of work offered in a field of literature, of which the recognition in the University is still recent and imperfect. An important addition was made to the resources in Philosophy by the appointment of Professor Münsterberg as Professor of Experimental Psychology and Director of the Psychological Laboratory, with the prospective coöperation of Professor James after the return of the latter from his leave of absence. The courses in History were enriched by a course upon Geographical Discovery in North America, offered by Dr. Winsor, Librarian of the University, and by courses in the Technical Aids to the Study of History, offered by Mr.

Bendelari. The appointment of Professor Ashley as Professor of Economic History enabled the Faculty to offer for the present year a course on the Economic History of Europe and America to 1763 and one on the History of Economic Theory down to Adam Smith, with the prospect hereafter of a more comprehensive and systematic treatment of Economic History than has yet been possible. In Roman Law the addition was made of two half-courses, upon Obligations and Inheritance, restoring the body of work in that subject to the importance which it had under the late Professors Gurney and Young.

Attention is also called to other new courses, provided for the year 1892–93, as follows: —

English Literature. The Works of Shakespere. *Half-course.* Professor WENDELL.

Early English. The Metrical Romances. *Half-course.* Professor KITTREDGE.

Aesthetics. The Psychology of Taste and the History of Aesthetic Theories. *Half-course.* Dr. SANTAYANA.

The Development of Ethics in England, from Hobbes to the Present Time. Professor PALMER.

The Social and Economic Condition of Workingmen. Mr. CUMMINGS.

Several questions relating to the Bachelor's and Master's degrees in Arts have claimed the attention of the Faculty during the last year.

Early in the year the Faculty was called upon by the Corporation and Overseers to give its opinion as to the proper limit of time, if any, within which a student who has completed his term of residence and study may make up any deficiency in his work and present himself for the degree of A.B. After some discussion the Faculty decided not to recommend the establishment of any limit, influenced partly by the fear that a specified limit of time might seem to suggest, by implication, the postponement of the task of making up any such deficiency as a recognized and natural arrangement to which the Faculty is indifferent, and partly by the consideration that any limit of time short enough to be properly stated in a standing vote would be likely at times to work undeserved hardship and so to call for relaxation. To the majority therefore it appeared better to maintain the present practice, which does not fix any period in which the claim for a degree is lost. It may be added that out of forty-three recommendations for the degree out of course made by the Faculty in the last six years, there have been but four cases in which more than two years elapsed between the time when the candidates should have graduated and the conferring of the degree.

An important change in the rules regulating the degree of A.M. was made during the last year, upon the advice of the University Council. By the seventh Standing Rule of the Academic Council, adopted

April 18, 1883, it was provided that students, otherwise properly qualified, who are recommended by the appropriate Faculty for the Bachelor's degree in Divinity, Law, or Science, or for the Doctor's degree in Medicine, after the longest course of study and residence, and upon examinations passed with high credit, should also be recommended by the Council for the degree of Master of Arts. The provision as to the longest course of study is a tolerably plain indication that the original purpose of this rule was to strengthen the inducements for professional students of high quality to pursue the lengthened course of study which some of the professional schools of the University had then established. Although the Academic Council had agreed to this rule by a large majority, its expediency after a few years began to be doubted by an increasing number of persons, and the use of the degree in Arts to give additional weight to a professional degree began to be viewed with increasing uneasiness. At the same time the growing strength of the professional schools began to diminish their interest in an arrangement which, having served its main purpose, had lost much of the importance which it may have had originally. With this gradual change of opinion in progress and pointing to the ultimate abolition of the rule of 1883, the amendment of the Statutes in 1890, by abolishing the Academic Council, and transferring to the new Faculty of Arts and Sciences many of the functions of the Council, including the administration of the ordinary degrees of Master of Arts, Doctor of Philosophy and Doctor of Science, raised a question of some delicacy as to the recommendation of students for the degree of Master of Arts together with a professional degree. On the one hand it was maintained that the degree thus used had become in fact a degree in Divinity, Law, or Medicine, and was no longer a degree in Arts, and must therefore be administered by the professional Faculty concerned with the particular case; on the other hand it was maintained that the degree of Master of Arts could by no use cease to be in common understanding a degree in Arts, and that it must therefore be administered by the Faculty of Arts, which, under the present organization of the University, succeeds the Academic Council in the management of the same degree in other cases. It was found practicable to make a temporary arrangement for the recommendations of 1891, but the question as to permanent administration was then left unsettled, and in 1892 the University Council, in which all the Faculties are represented, was invited to consider the subject. That body, after a very full interchange of opinions and by a vote approaching unaminity, advised that the practice of giving the degree of Master of Arts in connection with any other degree and upon the same course of study, should be

discontinued. This advice was purposely given in terms broad enough to cover the degree of Master of Arts which the degree of Doctor of Philosophy has hitherto carried with it by the traditional practice of Universities, but the great majority of the Faculty of Arts and Sciences, although recognizing no logical connection between the Master's degree as a part of the Doctor's full title and the degree given by the standing votes to professional students of high merit, were not sorry by this concession to secure the abolition of the rule of 1883 and to avoid the discussions, more troublesome than important, to which it promised to give rise. The advice of the University Council, embodied in its vote of May 26, 1892, was communicated to the Corporation and adopted, and the Faculty of Arts and Sciences was then requested to take measures for carrying it into effect, without prejudice to the rights of persons who might already have entered upon their studies with the two degrees in view. This was done by a notice given at the beginning of the present academic year and addressed to the Deans of the several Faculties, informing them that hereafter no person would be recommended for the degree of Master of Arts at the same time with any other degree and upon the same course of study, except in cases where one year of the work of preparation had been completed at the beginning of the year, 1892–93.

A further question as to the Master's degree arose in 1892, and although then disposed of, so far as the cases then presented were concerned, still requires serious consideration. The second of the Standing Votes of the Corporation and Overseers, relating to the the Master's and Doctor's degrees in Arts and Science, declares that the degree of Master of Arts is "open to Bachelors of Arts of Harvard College" and to Bachelors of other colleges who satisfy the Faculty that the course of study "for which they received the Bachelor's degree" is equivalent to that on which it is given in Harvard College, or "shall have passed such additional examinations" as the Faculty may prescribe. The sixth vote gives authority to recommend for the degree of Master of Arts properly qualified candidates "who, after taking a Bachelor's degree" shall have pursued for at least one year at this University an approved course of liberal study, and passed the required examinations with high credit. The language of these rules leaves no doubt that the intention of the Corporation and Overseers was that candidates, whether students of Harvard College or of any other college, shall have taken the Bachelor's degree and not simply qualified themselves for taking it, before beginning the one year of residence required for the Master's degree; and if the construction and application of the rules had not been in the hands of the two bodies which established them, it is difficult to

see how any relaxation of the strict requirement could have arisen. But prior to 1891 four or five cases arose, in which the work for the Bachelor's degree or its equivalent had been performed before the first year of residence, but the degree itself had not been received, for some reason reflecting no discredit upon the candidate. These cases had been presented by the Academic Council as cases of substantial, though not literal, compliance with the rules. It is believed that attention was called to their exceptional character and that it was in view of this that the candidates were then granted the two degrees at once. Four more cases occurred in 1891 in which candidates were recommended for the two degrees at once; two being students of high rank, who at the beginning of the Senior year had already covered a large part of the work of that year; but still had at that time a substantial deficiency; one a student who, having found it necessary to withdraw from College more than once, had at last completed a creditable record with but a slight deficiency, and had then begun his work for the Master's degree; and the fourth a student who had failed to receive the Bachelors degree in the proper year, because, although a member of the University and pursuing studies suitable for the purpose, he had not been registered under this Faculty. In these cases the recommendation for the two degrees was made in view of the exceptional circumstances, and was acceded to, it is believed, upon a statement of the facts.

In 1892 attention was called by a vote of the Board of Overseers to the disregard of the Standing Votes in these cases, and this vote being referred to the Faculty by the Corporation, the Faculty appointed a committee to report upon the subject, consisting of the Dean of the Faculty, the Dean of the Graduate School, and the Dean of Harvard College. A report was made by this committee and forwarded to the Corporation and Overseers, stating the circumstances under which the exceptional cases had arisen in former years, and submitting a list of the cases of similar exceptional character expected to present themselves in 1892. The Corporation and Overseers consenting to receive recommendations in these cases, eight students registered as Seniors, and one student of the Graduate School, then received both the Bachelor's and Master's degrees. It should be added that the eight Seniors had all earned the Bachelor's degree with distinction, five receiving the degree *magna cum laude*, and one receiving it *summa cum laude*, and that the Graduate student also held a distinguished place in special studies of a high order. In 1892 then, as in former years, every case in which the Standing Votes were disregarded in the recommendation and conferring of the Master's degree was a case of merit and believed to be entitled to exceptional treatment upon its own grounds. The Corporation and

Overseers, however, assenting to the recommendations in 1892, felt bound to couple with their assent a distinct notice to the Faculty that they should be unwilling in any future cases to proceed in derogation of the expressed language of the Standing Votes. It becomes therefore a pressing question whether the Standing Votes should not be amended, so as to admit cases in which for special reasons it may appear to be desirable that the two degrees should be given at the same time. It is plain from the nature of the cases which thus far have claimed favorable action, that similar ones must continue to arise in the future, as the consequence partly of larger numbers in the University generally and particularly in the Graduate School, and partly of the increased value now attached to the Master's degree, especially by students who expect to become teachers. The circumstances of the cases show great variety, but the applicants can be fairly well classified as follows: — Students who at their admission to College passed examinations with credit in more than the required number of subjects and who, with a moderate amount of additional work, are able at the beginning of the Senior year to show a nearly complete record of courses counting for the Bachelor's degree; students whose time spent in College has been broken by ill-health, or narrow means, or by other causes not discreditable, and who, as a result of this irregularity, find themselves at the beginning of their last year in Cambridge with a record for the Bachelor's degree still presenting some deficiency; Bachelors of Arts or undergraduates from other colleges, who have been admitted to the Graduate School or to a College class with some deficiency to be made up, and who find themselves not yet fully qualified for the Bachelor's degree at the beginning of the year in which the Master's degree is to be earned; and finally, students who by diligent use of their time have been able in three years to nearly cover the work required for graduation. The students presenting themselves for the two degrees and thus classified in many cases expect to become teachers, and a large proportion of them are so old, or are in such circumstances, as to make the saving of a further year of residence important. It is plain moreover, from the circumstances that they are persons of studious habits and strong resolution and likely therefore to do credit to the University. A rule so rigid in its terms as to cut them off from the natural reward for good work cannot fail to cause hardship in individual cases, in a manner never contemplated when the Standing Votes were adopted in the winter of 1871–72. At that time indeed, when the whole administration of the higher degrees upon examination was new ground for the governing Boards, the existence of such a class of cases could not be foreseen, and it was natural to emphasize in the votes the normal sequence of the Master's degree

after the Bachelor's. In this respect, however, as in many others, the Standing Votes now show plainly the marks of having been framed for a state of things which no longer exists. Some of the cases now under consideration would be met no doubt if the practice were introduced of conferring degrees at some other time besides Commencement. A complete removal of the present embarrasments, however, appears to require a re-casting of the second and sixth Standing Votes, so that the actual holding of the Bachelor's degree shall no longer be a condition precedent for entering upon the work required for the Master's. Such a change would make it possible to provide for the exceptional cases as they arise, without conflict with any general regulation, and in practice would have no visible tendency to injure the standing of the higher degree, or to introduce any fresh irregularity in the method of attaining it.

During the latter part of the academic year the Faculty gave much consideration to the elaboration of a proposition for offering to preparatory schools the services of a University board of examination. For some years there has been a visible tendency towards closer relations with the schools, and in general more inquiry and mutual observation as to the needs of colleges and schools in their respective parts of the field of education. It was believed that the time had come when the University could perform a public service, by giving to schools the opportunity for a careful inspection, by a body recognized as having a deep interest in promoting their efficiency and success, so far as this can be done by friendly offices from without. It appeared essential that the service, being friendly and not official, should be rendered confidentially and that it should involve no discussion of individuals. With such limitations it was thought that many schools, public and private, would be glad to obtain a view of their work and their methods as seen by examiners only concerned with its results. With these general considerations in mind the Faculty established a Schools Examination Board, to consist of the President of the University, four professors, and two principals of schools or academies, to begin its work in the year 1892–93. Under the direction of this Board the work or any part of the work of any school of a grade to prepare boys for Harvard College or the Lawrence Scientific School, will be examined on request of the Master, with the approval of the Superintendent in the case of a public school, and of some officer representing the trustees in the case of an endowed school. The examination is to cover organization, instruction, discipline, books and apparatus, but is not to apply to religious instruction, sanitary condition, or arrangements for boarding and lodging. The written report of the examination is not to be pub-

lished by either party, but may be used confidentially by both, and the merits or attainments of individual teachers or pupils are not to be reported upon. The list of schools examined, to be printed in the annual Catalogue, is to give no information as to the results of the examination in any case.

The experiment thus undertaken is an interesting one, and with much to recommend it in our community. The interest shown in the proposition when made public at the beginning of the current year, and the number and the distribution of the schools calling for the services of the Examination Board, warrant a confident belief that the University has entered upon a new field of usefulness, in which its great equipment can be used to perform a valuable service to the secondary education of the country.

CHARLES F. DUNBAR, *Dean.*

December, 1892.

THE COLLEGE.

To the President of the University:

Sir, — I beg to make my report on the condition of Harvard College during the academic year 1891–92.

The number of students at the beginning of the year was fourteen hundred and fifty-six: —

Seniors	271
Juniors	304
Sophomores	331
Freshmen	381
Total number of undergraduates	1287
Special Students	169
Total	1456

These figures show a gain of one hundred and fifteen over the preceding year: —

	Gain.	Loss.
Seniors	..	18
Juniors	50	..
Sophomores	41	..
Freshmen	14	..
Special Students	28	..
Total gain	133	
Total loss	18	
Net gain	115	

Three students died before the present academic year began: one of these, a member of the class of 1893, was drowned in the summer.

Two hundred and ninety-three students received in June the degree of Bachelor of Arts. Twenty of these had been in the Junior class, thirteen in the Graduate School, three in the Law School, two in the Medical School, and one in the Divinity School. Ten other candidates failed to get the degree.

The losses and the gains in the three younger classes between November, 1891, and November, 1892, may be learned from the following tables: —

	November, 1891.	Loss.	Gain.	November, 1892.
Class of 1893 . .	(Juniors) 304	44	74	(Seniors) 334
Class of 1894 . .	(Sophomores) 331	41	39	(Juniors) 329
Class of 1895 . .	(Freshmen) 381	50	57	(Sophomores) 388
		135	170	
Net gain in the three classes between Nov., 1891, and Nov., 1892 35				

	Class of 1893.	Class of 1894.	Class of 1895.	Total for three Classes.
LOSSES.				
Left College before the end of the year . .	9	9	17	35
Left College at the end of the year	12	9	2	23
Were "dropped" and left College	. .	1	10	11
Entered a lower class	3	7	9	19
Entered a higher class	20	15	12	47
Total loss	44	41	50	135
GAINS.				
From higher classes	9	4	7	20
From lower classes	19	10	. .	29
Newly admitted	46	25	50	121
Total gain	74	39	57	170
Net loss	. .	2	. .	. .
Net gain	30	. .	7	35

The figures for November, 1891, differ somewhat from the figures for October, 1891, in my last report: for, though nearly all our students register on the first morning of the College year, by no means all know to what College class, or even to what department of the University, they shall be assigned by the Faculty; and October is a month of transfers.

The reduction of the number of "dropped" Freshmen from thirty-nine in 1890 to twenty-eight in 1891 and twenty in 1892 is one of the many signs that the Administrative Board, which has controlled College discipline for the past two years, keeps sharper watch on Freshmen than was kept by the Faculty. Through the prompt action of the Board, idle Freshmen are set to work near the beginning of the year and are saved thereby from failure at the end.

The next table shows the losses and the gains in the number of Special Students since December, 1891: —

In attendance, December, 1891	169
Left College before the end of the year	23
Left College at the end of the year	55
Entered a College class	23
Total loss	101
Returned to College, 1892	68
Newly admitted	83
In attendance, November, 1892	151
Net loss	18

The committee in charge of Special Students discourages youths who might be fitted for College in a preparatory school from using College as a place of secondary education and athletic sport; and thus the number of Special Students is kept down.

In spite of the marked loss in Special Students, the records of October, 1892, show a net gain of one hundred and fifty men in the College alone. The Freshman class, though but meagrely recruited by "dropped" men, is extraordinarily large: —

Admitted by examination in 1892	366
before 1892	14
from other colleges	11
from a higher class	10
from the Special Students	2
from the Lawrence Scientific School	1
Total	404

About forty men who took some of their Admission Examinations in June did not take the remainder in September. Besides these, four hundred and fifty-two candidates took Final Examinations. Of the four hundred and fifty-two, three hundred and nineteen had already received Preliminary certificates; sixty-six divided the examinations between June and September; forty-two took all their examinations in June; and twenty-five took all in September. The tables that follow show in detail the result of the Final Examinations: —

	Admitted.	Admitted "Clear."	Rejected.
June	316	135	31
September	85	12	20
Total	401	147	51
Total rejected . .	51	. .	. .
	452	. .	. .

Since the September examinations are taken mainly by men whose schooling has been irregular or hurried, the proportion of successful candidates is naturally larger in June.

The four hundred and fifty-two candidates chose their plans of examination as follows: —

	1892.	1891.
Offering Plan (*a*): All the Elementary Studies and at least two Advanced Studies; fifteen * hours of examination	196	161
Plan (*b*): All the Elementary Studies except either German or French, and at least three Advanced Studies; sixteen hours of examination	229	211
Plan (*c*): All the Elementary Studies except either Greek or Latin, and at least four Advanced Studies, including Advanced Mathematics; seventeen hours of examination	25	27
Plan (*d*): All the Elementary Studies except either German or French and either Greek or Latin, and at least five Advanced Studies, including Advanced Mathematics; eighteen hours of examination	2	4
	452	403

Plans (*c*) and (*d*) show a slight falling off, which indicates that, in the preparatory schools at least, Greek holds its own. The gradual gain of Plan (*a*) at the expense of Plan (*b*) points to a gain in the number of schools that can teach German. It is clear that German is the great stumbling-block to Plan (*a*); for three quarters of the candidates that choose between German and French choose French. Moreover, the increasing severity of the examination in German seems likely to check the advance which German has been making against French.

The next table shows the comparative success of the four plans: —

	Admitted.	Rejected.	Percentage of Failures.
Plan (*a*)	174	22	11.2
" (*b*)	208	21	9.2
" (*c*)	18	7	28.
" (*d*)	1	1	50.

* The examination in English (required of every candidate) occupies an hour and a half, but counts for one hour only.

Among the alternative requirements in studies that every candidate must offer, Ancient History attracts twenty per cent more men than Modern, and Experimental Physics eighteen per cent more than Descriptive. It is gratifying to note that the expense and the difficulty of teaching Experimental Physics are so generally met.

The stability in the relative attractiveness of the Advanced Studies is as striking as ever. The rank-list for 1892 differs from that of 1890 and 1891 in two points only: French and Solid Geometry change places, going back to the same relative position that they occupied in 1889; and Analytic Geometry stands side by side with Physics in the lowest place: —

	1889.	1890 and 1891.	1892.
1.	Latin.	Latin.	Latin.
2.	Greek.	Greek.	Greek.
3.	Latin Composition.	Latin Composition.	Latin Composition.
4.	Greek Composition.	Greek Composition.	Greek Composition.
5.	French.	Solid Geometry.	French.
6.	Solid Geometry.	French.	Solid Geometry.
7.	Logarithms & Trigon.	Logarithms & Trigon.	Logarithms & Trigon.
8.	German.	German.	German.
9.	Chemistry.	Chemistry.	Chemistry.
10.	Analytic Geometry.	Mechanics or Adv. Alg.	Advanced Algebra.
11.	Mechanics or Adv. Alg.	Analytic Geometry.	Analytic Geometry.
12.	Physics.	Physics.	Physics.

The next table shows the same matter in detail: —

Number of Candidates offering	1889.		1890.		1891.		1892.	
	327		374		403		452	
		Per cent.		Per cent.		Per cent.		Per cent.
Greek	243	74	262	70	277	68	311	69
Latin	305	93	334	89	362	89	378	84
Greek Comp. .	188	57	190	51	214	53	233	52
Latin " .	200	61	217	58	268	66	267	59
German . . .	43	13	49	13	77	19	61	13
French	84	26	88	24	92	22	124	27
Logarithms and Trigonometry	54	17	75	20	86	21	93	21
Solid Geometry	61	19	91	24	100	25	111	25
Anal. Geometry	15	5	16	4	18	4	7	2
Mechanics or Advanced Algebra *	10	3	22	6	27	6	21	5
Physics . . .	1	0.3	9	2	5	1	7	2
Chemistry . .	27	8	41	11	41	10	58	13

* After 1890, Advanced Algebra only.

The table showing the percentage of failure in each study needs explanation. It is made up in part from the successful portion of the Preliminary Examinations that the candidates took in some earlier year: the unsuccessful portion is thrown out as not affecting the final record; and, in consequence, the percentage of failure in studies usually offered at the Preliminary Examinations looks small. I add to this table another, which shows the percentage of failure in each study among the candidates who offered that study at the Final Examinations of 1892: —

(*A*)	1889.	1890.	1891.	1892.
ELEMENTARY STUDIES.				
English	17	12	14	17
Greek	6	9	6	6
Latin	5	3	2	4
German	11	12	13	35
French	12	11	11	10
History (Ancient)	7	6	11	24
" (Modern)	13	18	10	19
Algebra	28	11½	10	12
Plane Geometry	13	17	17	22
Physical Science (Descriptive)	15	23	25	44
Physics (Experimental)	14	14	9	12
ADVANCED STUDIES.				
Greek	20	10	8	8
Latin	17	27	24	16
Greek Composition	12	17	23	24
Latin "	17	23	23	9
German	17	18	31	25
French	23	24	20½	14
Logarithms and Trigonometry	32	40	33½	34
Solid Geometry	23	31	16	23
Analytic Geometry	33	37½	22	29
Mechanics or Advanced Algebra*	64	45½	37	43
Physics	100	11	80	14
Chemistry	0	0	7	3

* After 1890, Advanced Algebra only.

(*B*) ELEMENTARY STUDIES.		ADVANCED STUDIES.	
English	17	Greek	8
Greek	15	Latin	17
Latin	11	Greek Composition	29
German	56	Latin "	13
French	19	German	28
History (Ancient)	29	French	17
" (Modern)	32	Logarithms and Trigonometry	35
Algebra	23	Solid Geometry	25
Plane Geometry	30	Analytic Geometry	29
Physical Science (Descriptive)	53	Advanced Algebra	43
Physics (Experimental)	18	Physics	14
		Chemistry	4

These tables reveal some of those sudden changes in standard of which the secondary schools not unreasonably complain. It must be borne in mind, however, that Descriptive Physics, in which the percentage of failure looks alarming, has become the natural refuge of the hastily and irregularly prepared; and that, therefore, the percentage of failure is naturally larger than in Experimental Physics with its certified note-books and its far from perfunctory course in the laboratory. The fluctuation of percentage in Advanced Physics is readily explained by the scarcity of candidates; if, as in 1889, there is but one candidate and he fails, the percentage of failure cannot be accepted as the standard for later years.

The clogging of Freshman courses with untrained persons is so serious an evil that after the June examinations for admission the Faculty sent to all new Freshmen the following notice: —

NOTICE TO CANDIDATES WHO RECEIVED CONDITIONS.

Failure in a study is reported as *E* (simple failure) or *F* (bad failure).

No student admitted to College by examination will be allowed to take a College study to which a study in the requirements for admission is introductory,—

(1) if he has not taken the examination in the introductory study;

(2) if he has entered College with the record of having "failed badly" in the introductory study.

If a student has "failed" in an introductory study, he may be admitted to the College study provisionally; but if it should appear before the middle of the year that he is not qualified to pursue the study, he may be required by the instructor, with the approval of the Dean, to withdraw from the course.

The vote of the Faculty applies to prescribed work as well as to elective, and its effect is wholesome; but it does not reach all the Special Students. This year, in the largest Freshman course, "English A," every Special Student who had not taken the admis-

sion examination in English was subjected to some test of fitness for the Freshman work; and thus, indirectly, even among the Special Students, the vote has proved effective. What to do with the "*F* men" is a puzzle; but all may be advised to go into an elementary class under a competent private tutor, and thus to make ready for such College courses as they are unfit to take this year. Last year such a preparatory class in English was managed by a private tutor with some success.

The grading of candidates who fail in any study enables me to show by a table how many failures are total failures. Naturally the proportion of *F*'s to *E*'s is largest in the definite studies, Mathematics and Physics: —

	E.	*F.*
ELEMENTARY.		
English	59	18
Greek	13	13
Latin	14	5
German	57	35
French	35	4
History (Ancient)	41	14
" (Modern)	16	7
Algebra	29	25
Plane Geometry	35	64
Physical Science (Descriptive)	36	46
" " (Experimental)	20	13
ADVANCED.		
Greek	19	6
Latin	38	21
Greek Composition	44	11
Latin "	18	7
German	9	6
French	14	3
Logarithms and Trigonometry	24	8
Solid Geometry	16	9
Analytic "	1	1
Advanced Algebra	2	7
Physics	..	1
Chemistry	1	1

Four hundred and sixty candidates took Preliminary Examinations, with somewhat better result than the four hundred and twenty-eight who took them in 1891; yet the number of failures was larger than it should have been: —

Number of candidates who received certificates for examinations occupying	1889.	1890.	1891.	1892.
Less than five hours	4	5	13	4
Five hours	49	51	41	53
Six "	63	59	55	74
Seven "	54	76	80	92
Eight "	79	80	67	84
Nine "	16	29	46	48
Ten "	11	8	13	18
Eleven "	5	6	9	6
Twelve "	3	..	2	..
Thirteen "	1	3	..	3
Fourteen "	..	2	..	..
Fifteen "	..	1	..	..
Sixteen "	..	..	..	..
Seventeen"	..	..	1	..
Received certificates	285	320	327	382
Failed	67	56	101	78
Total number of candidates	352	376	428	460

The certificate of preparation for the Preliminary Examinations is far from satisfactory. Often it certifies nothing: "*ready to be examined*," "*prepared to write examinations*," "*I send him to examinations*," "*should be able to take examinations*," — any one of these expressions may mean that the boy is proficient in his studies, and may mean nothing of the sort. This year so many of the certificates were ambiguous that the Secretary sent to several teachers a printed form: —

☞ This blank is not prescribed by Harvard College, but shows the nature of the certificate required for the Preliminary Examinations.

Mr. . . . . has been my pupil for . . . . . years, and is, in my judgment, prepared to pass the Harvard Preliminary Examinations in the following studies: —

Some failures in Preliminary Examinations are in a measure the fault of the College, which tries to reap where it has not sown; others spring from the temperament of certain boys, who can never be positively prepared for any examination, but may tumble through and may not, and who, from this chronic unsteadiness, are the very boys that need Preliminary Examinations: but the excessive number of failures leads me to believe that some of the certificates are evasive or irresponsible; and, since to challenge any certificate is ungracious,

I believe that the College might well insist on the use of printed forms. Incidentally, our experience with the Preliminary Examinations is an instructive comment on admission by certificate.

Every Freshman, good or bad, has brought to College a certificate of moral character. The certificate is usually signed by the teacher, and often means that the boy — so far as the teacher knows — has never committed a crime. Sometimes the teacher names all the boys that he sends to the Final Examinations, and appends a sort of lump testimonial that "These boys are all [or "are all believed to be"] of good moral character." It is time to do away with required testimonials. Now and then a boy's difficulty in getting one may show the College that the boy needs watching; now and then, by threatening to withhold one, a teacher may gain a point in discipline: but these ends may be effected by other means. As protection to the College, the present requirement is, in my judgment, worthless, — and worse than worthless, since it stands in the place of something good. I have rarely met a boy so base that some respectable man, teacher or clergyman, would not certify his virtue. I once asked a private tutor who had certified the moral character of a boy notoriously bad, how he could do it. He replied that the boy had never in his presence used bad language, and that "you could nearly always tell by that." The present requirement professes to be what it is not: it embarrasses teachers, especially private tutors, and endangers their morals more than it protects the morals of the College. Many boys of eighteen are neither moral nor immoral, but of large capacity for vice or virtue. When they go out from the school into the world — whether the College world or the business world — they become bad or good, according as the school has cosseted them or developed their sense of responsibility, according as their parents are foolish or wise, according as the world throws them among bad or good companions. What the College needs in regard to every new student is information; and this may be had, not from formal testimonials — still less from job lot testimonials for a dozen boys at once — but from an informal, perhaps a confidential, letter, in which some one who knows the boy tells, for his good, his greatest needs. The blank forms used in the admission of Special Students ask for "the names of two persons, preferably teachers or employers, from whom information about you may be obtained." Thus the Committee in charge of Special Students gets frank testimony which, to instructors that take a personal interest in their pupils, is immensely valuable. Moreover, the chance of keeping out a vicious boy is better than when refusal to admit him hinges on the willingness of a teacher to

tell boy and parents to their faces that he will not give the vague testimonial which the College now demands. I favor, then, the requirement, not of testimonials but of references; and, in the case of schools, I should usually require also a certificate of honorable dismissal, — usually rather than always, because, so long as schoolmasters are human, there will occasionally be an unjust refusal to give a boy an honorable discharge.

The Faculty has never known just what to do with a student who does not make up his admission conditions. If he does good work in College, it is difficult, and not desirable, to withhold his degree. Too often he defers the removal of conditions till his Senior year, takes, as a Senior, in order to remove them, courses designed for Freshmen, fails, and asks for mercy that it is hardly fair to refuse. Yet to require a thing nominally and not actually is weakening to both parties concerned: it is better for the College and for the student that the student should do what the College demands of him and should do it promptly. Accordingly, on the recommendation of the Administrative Board, the Faculty voted that all questions relating to admission conditions must be settled before the Junior year. This vote tends to make the student promptly serious in his view of admisson conditions, and fixes the penalty to the dilatory as loss of promotion but not necessarily postponement of the degree. Moreover it saves Seniors from much disquietude, and keeps them out of courses in which their presence is of small use to anybody. Clearly this rule should not be enforced without fair warning, and cannot in perfect fairness be applied before the Junior year of the class of 1896.

The desire of good students in Japan to enter Harvard College, and the information furnished in regard to such students by Professor J. H. Wigmore of Tokio, led the Faculty to appoint a committee which should consider on what terms a Japanese student might reasonably be admitted. The plan recommended by this committee was adopted : —

1. The following substitutes for Elementary Studies to be accepted from Japanese students:

A. The Japanese Language and Literature, in place of *English*, to count for *one hour* of the admission requirements;

B. The Chinese Language and Literature, in place of *Elementary Greek*, to count for *two hours*;

C. English, in place of *Elementary Latin*, to count for *two hours*.

A Japanese student, offering these substitutes, to enter either under Plan (*a*), offering *both French and German* and *two Advanced Studies*, or under Plan (*b*), offering *either French or German* and *three Advanced Studies*.

2. The standard of scholarship in Japanese and Chinese to be the same as that required for admission to the Imperial University of Japan at Tokio; and the evidence of this scholarship to be furnished by *certificate*, which must be shown to be such as would be accepted by that University.

3. The regular Harvard examinations to be passed in all other studies offered.

4. Students and graduates of the Imperial University, but of no other institution in Japan, to have the privilege of admission without examination, under the requirements of this plan, at the hands of the Committee on Admission from other Colleges.

The members of the Administrative Board of Harvard College for year 1891–92 were: the Dean of the College; Professors Norton, C. J. White, Bartlett, Davis, Byerly, Emerton, Lanman, Macvane, Wright, B. O. Peirce, Morgan, Kittredge, and Marsh; and Doctors Snow and Huntington.

The Board had an amicable year, and did some effective disciplinary work. Believing that the mental and the moral health of the College would be furthered by the energetic handling of delinquent Freshmen, they determined to put the laziest Freshmen on probation at the first opportunity. "Probation," as defined in the College Regulations, means: "serious danger of separation from College. A student on probation is not allowed to compete for scholarships, prizes, or honors, or to take part — whether with students or with other persons — in any public theatrical or musical performance or in any public athletic contest; he cannot be restored to full standing without a special vote of the Administrative Board, and he cannot be recommended for a degree; he may be required to put himself under the direction of a private tutor approved by the Dean, or to report daily to an officer of the University, or to do both; and at any time, by vote of the Administrative Board, his probation may be closed and his connection with the College ended."

The change from the daily scrutiny of the preparatory school to the comparative independence of college life tries the mettle of our Freshmen severely. If dealt with summarily, an idle Freshman has time to recover himself; but, if he may count on a succession of warnings before a serious penalty, he continues to shirk his College duties until, however good his resolutions, it is too late for him to keep up with his class. Sending a Freshman home may have an excellent moral effect on both him and others in December, but little or no effect in May.

By the establishment of November tests, the Faculty made prompt discipline possible; and, by the delegation of power to the Administrative Board, they made it comparatively easy. Last year the Board

endeavored to get complete reports of all Freshman work by November 1. On November 9, scarcely six weeks after the beginning of the term, five Freshmen were put on probation; before the end of the month, twenty-two Freshman had been "admonished*"; before December 14, five more Freshmen and eight Sophomores had been admonished; on December 16, one Freshman and one Sophomore were put on probation, and were told that, not later than February, the Board would either restore them to full standing or send them home. Before the Mid-Years, one of the Freshmen put on probation in November, together with the Freshman put on probation in December, was sent away; and another Freshman, put on probation in the middle of February, was sent away on the fourth of April. Of the three Freshmen put on probation in November, two completely recovered themselves and began the present year as Sophomores in good standing. In the course of the year, twelve students were sent home by the closing of their probation; five were withdrawn by their fathers at the request of the Board or the Dean; two were dismissed by the Faculty for cheating at an examination; and three, for bad offences, were privately told that they must go.

All this indicates, not that College morals were worse, but that College discipline was better. The students themselves believe in a livelier discipline than could be effected by so unwieldy a body as the Faculty; and they may be relied on to support the Board in its effort to reclaim the lazy and the vicious. As a rule, even the student who suffers admits sooner or later that suffering has done him good, and that there is no kindness in a postponement which only makes humiliation cumulative.

The Board made another effort for stricter legislation. Its members believed to a man that probation should mean in fact what it means in print — "serious danger of separation from the University." Long periods of probation, such as two years, they regarded as mischievous, believing that a man on probation should promptly do better and be restored to full standing or promptly go home. Accordingly, they tried the experiment of putting a man on probation for a limited time and thereby committing themselves to prompt final action. Though this experiment was not satisfactory in every case, the increased liveliness of College discipline proved salutary.

* Admonition, like probation, involves a notice to parent or guardian. Sometimes this notice is a personal letter from the Dean; sometimes it is a printed announcement: —

"I am sorry to tell you that your son, ... , has been admonished for neglect of his College work; and that, unless he shows immediate improvement, he is likely to be put on Probation."

Perhaps the most serious obstacle to strict government is the difficulty of making students observe the limits of holidays and short vacations. Thanksgiving Day is too likely to mean absence till the following Monday; and Christmas and Easter holidays are often extended, to the detriment of College work. Undergraduates fail to see that, just as a business man who lives in Portsmouth must start for his office in Boston earlier than if he lived in Lynn, so a Harvard student who lives in Detroit should, in returning to his work, leave home earlier than if he lived in Boston. They insist on the right to have every minute of the vacation at home and to deduct their travelling time from the working part of the College year; and, though the rule that every student shall register before noon of the day following the Christmas or the April recess usually prevents men from coming back late, it does not prevent them from going away early. Parents, who sometimes complain that our discipline is lax, thoughtlessly make it laxer by urging their sons to hasten home too early or by keeping them at home too late; and the ragged edges of our lesser vacations, which commonly begin or end in the middle of a week, make almost irresistible the temptation of piecing out: to travel several days for the sake of a day or two at home seems hardly worth while. Many parents, too, regard College as far less serious in its demands than school or business, as a place of delightful irresponsibility, a sort of four years' breathing-space wherein a youth may at once cultivate and disport himself before he is condemned for life to hard labor. This view, for which the Colleges themselves are chiefly answerable, has in it just enough of truth to be seductive. It is easy for a student to enjoy the freedom of College life without perceiving that in that freedom he is responsible to every member of the University. The absence of one man from Cambridge for a day or two seems a trifle: but the University is a great machine in which every part depends on every other part; and experience shows that a careless assumption of independence, especially in a good student, is demoralizing to the students as a body.

For the degree of A.B. with distinction, the Faculty demands marked excellence in a part of College work and a respectable record in the whole. As evidence of general respectability, it used to require a grade as high as *C* in eighteen courses; and as proof of positive excellence, either a certain number of *A's* and *B's* or Final Honors, or two Honorable Mentions.

The requirement of eighteen courses with a grade as high as *C* proved unjust to students admitted to advanced standing. A clever boy, so far ahead of his class in the preparatory school that he entered

College a Sophomore when the others entered Freshmen, was obliged, if he wished a degree with distinction, not merely to get the requisite number of *A's* and *B's* in three years instead of four, but to take six courses a year in order to have his credit the necessary eighteen. By his very ability — unless he did four years' work in three years — he had forfeited his degree with distinction. To remedy this and kindred evils, the Faculty adopted last year the following scheme: —

DEGREE WITH DISTINCTION.

A student recommended for the degree of Bachelor of Arts may be recommended either for an *ordinary* degree or for a degree *with distinction* in one of three grades.

Any member of the graduating class who has attained Grade *C* or a higher grade in *eighteen* courses or their equivalent, or who has attained Grade *C* or a higher grade in as many courses as he is required to pursue for the degree, will be recommended for a degree with distinction on the following conditions: —

If he has attained Grade *A* in *fifteen* courses or their equivalent, or has received Highest Honors in any department, he is recommended for a degree *summa cum laude;*

If he has attained Grade *A* in *nine* courses or their equivalent, or Grade *A* or *B* in *fifteen* courses or their equivalent, or has received Honors in any department, he is recommended for a degree *magna cum laude:*

If he has attained Grade *A* or *B* in *nine* courses or their equivalent, or has received Honorable Mention *twice*, he is recommended for a degree *cum laude.*

The cases of members of the graduating class of very high rank who have not fulfilled the above requirements will be considered on their merits.

The reason for the grade of distinction in the degree is stated in the diploma.

A Commencement Part is assignnd to every student recommended for a degree with distinction.

Of the one hundred and eighteen men that secured the degree with distinction in 1892 not all deserved it; for no student whose work falls off conspicuously in the Senior year should graduate *cum laude.*

Honors are not sought with eagerness. In 1892, only fourteen men, of whom four were registered as graduates, took Final Honors; and only two of the fourteen took Highest Honors. Often our strongest candidates scatter their energies over so many parts of College life that they can give to no one study the time demanded for Highest Honors. Second-year Honors were awarded to seventeen men in Classics and to four in Mathematics; and the Faculty voted to establish Second-Year Honors in History.

In spite of the large amount of money annually distributed in scholarships and Price Greenleaf Aid, a number of our undergraduates suffer from poverty. Many students get little or no money from home; and in the effort to be self-supporting they lose the high rank

that would entitle them to scholarships. Vacation earnings are usually light; and work in term-time between hours of recitation or study is seldom paid high. The Loan Fund and the Beneficiary Fund give some help, but not a great deal in proportion to the number of the needy. Rich men, even rich undergraduates, answer cheerfully a call for money; but generosity of this sort tends to pauperize such students as take kindly to pauperizing. Something has been accomplished by a sort of floating loan fund: money for the student is put into the hands of the Dean, who gives the student to understand that, as soon as it is returned, it will be lent to some other student equally in need. The obligation thus involved is thought to be more effective than a written promise to pay, which seems of itself a sort of *quid pro quo*.

It has been suggested that the College should establish a few scholarships as prizes for the Freshmen with the best record at the examinations for admission, and should print in the University Catalogue the names of these Freshmen together with the names of their schools or tutors. It would thus reward the ambition of the schools and would emphasize the truth, sometimes neglected, that scholarships are not badges of poverty but honorable prizes. At present we have few prizes for which rich youths may honorably compete with poor, and none, except the Boylston Prizes for Elocution, for which they compete eagerly. Yet the rich youth needs — often more than the poor one — a stimulus to do his best, and public approbation for doing it. "Deturs" are soon forgotten; and prizes for literary work are almost ignored unless they are won by women. I would withdraw none of our present scholarships from the men that need money; but I would give some public encouragement to those students, rich or poor, whose work is best.

LE BARON R. BRIGGS, *Dean*.

NOVEMBER, 1892.

THE LAWRENCE SCIENTIFIC SCHOOL.

TO THE PRESIDENT OF THE UNIVERSITY: —

SIR, — I have the honor to submit a report on the condition and work of the Lawrence Scientific School for the last academic year.

At the beginning of that year I found myself, with little notice, placed in charge of the official business of the School. Owing to other engagements, including the management of six courses in the

Department of Geology, I have not been able to give the full measure of care to the interests of the School which their importance demands. Fortunately my predecessor, Dean Chaplin, was able to turn over his work in excellent condition, so that no difficulties in the administration have been encountered.

One hundred and eighteen students registered at the beginning of the college year; six others were admitted after the publication of the catalogue, making an increase of thirty-six over the attendance of the preceding year. By reference to the reports of previous years, it will be seen that the rapid rate of increase in the attendance of the School since 1887, when only fourteen students were registered, was maintained in 1891–92. The conduct of students in the School has been excellent. In only one case was serious discipline called for, and this where a student had received undue help in the preparation of some reports done outside of the class room. In ten instances students were put on probation for inadequate performance of duty.

With the consent of the Faculty of Arts and Sciences, a course in Anatomy, Physiology, and Physical Training has been established, being the seventh in the list of four year courses leading to the degree of Bachelor of Science, and Dr. G. W. Fitz has been chosen as the officer immediately in charge of the instruction. The objects of this course are as follows, viz.: to provide a training for those who intend to study medicine; to fit men to take charge of gymnasiums; and to afford systematic instruction in exercise and hygiene to students who may need to take special care of their health. The first and second years of this course have been approved by the Medical Faculty of this University as affording instruction suited to those who may desire to enter the Medical School. The applications which have already been made for admission to this course are sufficiently numerous to show that it is likely to meet a need.

The most important additions to the resources of the School consist in the Rotch Electrical Laboratory, and the laboratory of Anatomy, Physiology, and Physical Culture, both of which will be first used in the instruction of undergraduates at the beginning of the academic year 1892–93. The Rotch Laboratory begun in 1891, was completed and supplied with apparatus in time to be used by the Summer School of Electrical Engineering, taught in July and August of this year. The experience thus obtained showed that, in all important respects, the building, and the mechanical appliances which it contains, are admirably suited for instruction in this department. The Laboratory of Anatomy, Physiology, and Physical Training has been established in the rooms on the lower floor of the east wing of Lawrence Hall. A grant of a thousand dollars from the income of

the School has made it possible to supply this establishment with all apparatus which is necessary at the outset of its work. Arrangements have been made to provide the instructor in Astronomy with a transit house of sufficient size to accommodate three instruments.

The most serious difficulties encountered in the administration of the School in the past year have been due to the lack of an officer in charge of the department of Engineering. The resignation of Professor Chaplin deprived this department of its head, and it has only been by the unremitting exertions of the remaining instructors that the grade of the work has been maintained. By the election of Professor Burr, the position of this department has been re-established. Arrangements have also been made to provide an instructor n Highway Engineering, and additional assistants in the other work of the course — provisions which will add to the range and thoroughness of the teaching.

In accordance with the request of the Administrative Board of the School, eight new University Scholarships of the value of one hundred and fifty dollars a year were established, making the total number of such Scholarships, — one-third of which are assignable only to the graduates of the Normal Schools, — twenty-four. The new Scholarships are assignable at the time when students are admitted, an arrangement which permits the Board to help a number of young men of promise, but of slender means, in the first year of their residence at the University.

The remarkable increase in the attendance at the Lawrence Scientific School which has taken place in the last five years, appears to be in the main due to a more widely disseminated knowledge of the advantages which it can afford students who wish to combine a measure of academic culture with a training in some branch of science which will serve as the foundation for a career. At the same time, it is a valuable element in the policy of the School that special effort is made to adapt the instruction to the needs of the individual student, and at the end of his course to place him in a situation suited to his capabilities and training.

In its present condition, the Lawrence School affords peculiar opportunities to those who seek to obtain a technical education of high grade at the least possible cost. The fee for the course is considerably less than that charged in some well-known schools of like grade. The other expenses of student life in Cambridge have now been reduced below the amount usually required at the greater technical schools in this country. Intimate social relations have of late years been developed between the students of the College and those of

the Lawrence Scientific School, and much instruction is common to the two departments; so that there is an essential union between these two sets of students, although candidates for two different degrees.

For the development of the School there is immediate need of instruction in Architecture, and in Sanitary, Mechanical, Marine, and Mining Engineering. These additional subjects would not stand alone, but would be supported by a large body of instruction already given in the University. It is now evident that it will be necessary in a short time to provide additional accommodations either by enlarging the Scientific School Building or by erecting another hall.

N. S. SHALER, *Dean.*

DECEMBER, 1892.

THE GRADUATE SCHOOL.

TO THE PRESIDENT OF THE UNIVERSITY:

SIR, — I have the honor of presenting my report on the state of the Graduate School for the academic year 1891–92.

The number of students registered and actually carrying on studies in the School, in any part of the academic year, — omitting those whose registration was cancelled, on account of their connexion with the School having been a very brief one, or for other reasons, — was two hundred; of whom one hundred and eighty-seven were classed as resident students, and thirteen as non-resident students. The registration for the year 1890–91, as shown by my last annual report, was one hundred and thirty-two. That for 1891–92 exceeds it, therefore, in the remarkable ratio of more than fifty per cent.

The subjoined table exhibits the classification of the students in the Graduate School, according to various lines of division; the figures being given, for convenience of comparison, for the two academic years, 1890–91 and 1891–92: —

	1890–91.		1891–92.	
Resident students doing full work in the School for the whole academic year	62		108	
Resident students not doing full work, or not working for the whole year as resident students	55	117	79	187
Non-Resident students holding fellowships	11		9	
Non-Resident students not holding fellowships	4	15	4	13

Students pursuing their principal studies in the Semitic Languages and History	5		7	
In Classical Philology	10		20	
In Modern Languages (including English)	16		29	
In Philosophy	16		22	
In History and Political Science	17		29	
In Fine Arts	0		3	
In Music	1		1	
In Mathematics	13		20	
In Physics	6		9	
In Chemistry	13		14	
In Natural History	28		35	
In American Archaeology and Ethnology	2		3	
Unclassed students	5	132	8	200
First-year students	75		131	
Second-year students	26		44	
Third-year students	15		13	
Fourth-year students	11		8	
Students in a fifth or later year	5	132	4	200
A.B.'s and S.B.'s of Harvard University, and of no other institution	65		78	
A.B.'s and S.B.'s (and holders of similar degrees) of other institutions and also of Harvard University	16		24	
Students not holding the Harvard degree of A.B. or S.B.	51	132	98	200
Students holding the Harvard degree of A.M., Ph.D., or S.D.	36		43	
Students holding the Harvard degree of A.B. or S.B., but not of A.M., Ph.D., or S.D.	56		73	
Students holding no Harvard degree in Arts, Philosophy, or Science	40	132	84	200

The following are among the noticeable points of the above table: —

The increase from 1890–91 to 1891–92 in the whole number of students in the School was fifty-one and a half per cent; the increase in the number of resident students was sixty per cent; and that in the number of resident students doing full work was seventy-four per cent.

The increase in the number of first and second year students was seventy-five per cent; while there was a slight falling-off in the number of students who had been already two years in the School.

The increase in the number of students holding a Harvard degree was twenty-six per cent; while that in the number of students holding no Harvard degree was one hundred and ten per cent.

All these facts tend to show that the growth of the School, though in its measure it may be beyond what is normally to be expected, is due to healthy and permanent causes. Last year's registration has already been surpassed by that for the current year, which is doubtless still incomplete. We may now feel confident that the

opportunities and advantages for advanced study offered by this University have become well known throughout the country; that a substantial part of the strong drift which is carrying the educated young men of the United States into higher studies than have heretofore been deemed necessary in preparation for the best intellectual work is directed this way; that it is bringing us an always-increasing body of able and ambitious students, well disposed and well qualified to encourage and stimulate others to follow them; and that, after many years of slow, and sometimes not very hopeful, advance, the prosperous development of our Graduate School and its establishment in the everywhere acknowledged position of chief leader and representative of the highest life of the University as an institution of pure learning are fully assured.

In addition to the students registered in the Graduate School, the Catalogue for 1891–92 contains the names of twenty-eight graduates of colleges, scientific schools, and professional schools, in the Senior Class of Harvard College, six in the Junior Class, and three as Special Students of the College, making thirty-seven graduates registered as undergraduates; of whom, however, one Senior was transferred, in the course of the year, to the Graduate School, and received at Commencement the degree of Master of Arts. A considerable proportion of the graduates thus registered might fitly have entered the Graduate School; and many of these were led to join a college class by their need of financial aid not open to graduate students.

Outside of the departments under the charge of the Faculty of Arts and Sciences, there were eleven graduate students in the Divinity School, and thirty graduate students in the Medical School; none of these being candidates for a professional degree. Forty-nine students in the professional schools presented themselves before the Faculty of Arts and Sciences at the end of the year as candidates for the degree of Master of Arts, many of these being at the same time candidates for a professional degree.

The students in all the departments of the University who may properly be regarded as graduate students, — excluding candidates for a professional degree unaccompanied by the degree of A.M., — may then be enumerated as follows: —

In the Graduate School	200
In the College	37
In the Professional Schools	41
Candidates for A.M. in the Professional Schools	49
	327
Deduct for repetitions	5
Total number	322

The number of students in the Graduate School admitted to any degree, and the number of students in other departments of the University admitted to the degree of A.M., are shown in the following table, for the two years, 1891 and 1892: —

	1891.		1892.	
Graduate students admitted to A.B.	7		14	
Graduate students admitted to A.M.	36		55	
Graduate students admitted to Ph.D	7		5	
Graduate students admitted to S.B.	0		1	
Graduate students admitted to S.D.	1	51	1	76
Seniors admitted to A.M., with A.B.	2		8	
Professional students admitted to A.M. on special courses of study	5		13	
Professional students admitted to A.M. with a professional degree	31	38	21	42
Total of the above list		89		118
Deduct Graduate students admitted to A.B. or S.B.		7		15
Total number admitted to A.M., Ph.D., or S.D.		82		103

Those admitted to the degrees of A.M., Ph.D., and S.D. may also be classified as follows: —

	1891.		1892.	
Harvard Bachelors of Arts or Science, or persons receiving A.B. at the same time, not also graduated elsewhere	58		58	
Harvard Bachelors of Arts or Science, also graduated elsewhere	6		16	
Students not Harvard Bachelors of Arts or Science	18	82	29	103

The following are the names of the students admitted to the degree of *Doctor of Philosophy and Master of Arts* or to the degree of *Doctor of Science*, at Commencement 1892: —

To Ph.D. and A.M.

Charles Benedict Davenport, S.B. (*Brooklyn Pol. Inst.*) 1886, A.B. (*Harvard Univ.*) 1889, A.M. (*Ibid.*) 1890; in Natural History (Zoölogy).

Alfred Cope Garrett, A.B. (*Haverford Coll.*) 1887, A.B. (*Harvard Univ.*) 1889, A.M. (*Ibid.*) 1891; in Modern Languages (English).

Walter Louis Jennings, A.B. 1889, A.M. 1890; in Chemistry.

Henry Baldwin Ward, A.B. (*Williams Coll.*) 1885; in Natural History (Zoölogy).

William Homer Warren, A.B. *summa cum laude* 1889, A.M. 1891; in Chemistry (Organic Chemistry).

To S.D.

James Ellis Humphrey, S.B. 1886; in Natural History (Botany).

Of the students here named, Dr. Davenport is now (as last year) Instructor in Zoölogy at this University, and is at the same time continuing the study of Zoölogy in the Graduate School; Dr. Garrett is Assistant in Anglo-Saxon at this University, and is continuing the study of English in the Graduate School; Dr. Jennings is continuing the study of Chemistry at the University of Heidelberg; Dr. Ward is Instructor in Invertebrate Morphology at the University of Michigan, Ann Arbor, Michigan; Dr. Warren has an important professional position as a chemist; and Dr. Humphrey continues at present to hold the professorship of Vegetable Physiology at the Massachusetts Agricultural Experiment Station, Amherst, Massachusetts, but vacates that position in January, 1893, and then goes on a scientific expedition to Jamaica.

The fellowships in the gift of the University and belonging to the Graduate School were held, in the year 1891–92, by the following persons: —

NON–RESIDENT FELLOWS.

(The year named in each case is that of incumbency.)

Harris Fellowship.

Edward Everett Hale, Jr., A.B. 1883; (*second year*); studying *English and Germanic Philology* at Halle.

Rogers Fellowships.

John Henry Gray, A.B. 1887; (*third year, fourth* in some graduate fellowship or scholarship); studying *Political Science* at Berlin and Halle.

John William Henry Walden, A.B. 1888, A.M. 1889, PH.D. 1891; (*first year, fourth* in some graduate fellowship or scholarship); studying *Classical Philology* at Berlin.

Parker Fellowships.

Howard Beers Gibson, A.B. 1888; (*first year*); studying *Chemistry* at Leipzig.

George Howard Parker, S.B. 1887, S.D. 1891; (*first year*); studying *Zoölogy* at Leipzig.

James Brown Scott, A.B. 1890, A.M. 1891; (*first year, second* in some graduate fellowship or scholarship); studying *Political Science* at Berlin.

Frank Beverly Williams, A.B. 1888, A.M. 1890; (*third year*); studying *History and Jurisprudence* at Berlin.

John Thornton Kirkland Fellowship.

Johnathan Brace Chittenden, S.B. (*Worcester Poly. Inst.*) 1888, A.B. (*Harvard Univ.*) 1889, A.M. (*Ibid.*) 1890; (*first year, third* in some graduate fellowship or scholarship); studying *Mathematics* at Königsberg.

RESIDENT FELLOWS.

James Walker Fellowship.

Dickinson Sergeant Miller, formerly a student at the *Univ. of Pennsylvania* and at *Clark University*; (*second year*); studying *Philosophy*.

Morgan Fellowships.

William James Battle, A.B. (*Univ. of North Carolina*) 1888, A.M. (*Ibid.*) 1889, PH.D. (*Ibid.*) 1890, A.M. (*Harvard Univ.*) 1891; (*first year*, *second* in some graduate fellowship or scholarship); studying *Classical Philology*.

George Lucius Collie, S.B. (*Beloit Coll.*) 1881, A.M. (*Harvard Univ.*) 1891; (*first year*); studying *Geology*.

Herbert Darling Foster, A.B. (*Dartmouth Coll.*) 1885, A.M. (*Ibid.*) 1888; (*first year*); studying *History*.

William Suddards Franklin, S.B. (*Univ. of Kansas*) 1887, S.M. (*Ibid.*) 1888; (*first year*); studying *Physics*. (Withdrew 19 January 1892).

Alfred LeRoy Hodder; (*first year*); studying *Philosophy*. (Withdrew 23 March 1892).

Henry Baldwin Ward, A.B. (*Williams Coll.*) 1885; (*second year*); studying *Zoölogy*.

John Tyndall Scholarship.

Allison Wing Slocum, A.B. (*Haverford Coll.*) 1888, A.M. (*Ibid.*) 1889; (*first year*, *second* in some graduate fellowship or scholarship); studying *Mathematical Physics*.

Henry Lee Memorial Fellowship.

William Hill, A.B. (*Univ. of Kansas*) 1890, A.B. (*Harvard Univ.*) 1891; (*first year*); studying *Political Science*.

Ozias Goodwin Memorial Fellowship.

William Garrott Brown, A.B. (*Howard Coll., Ala.*) 1886, A.B. (*Harvard Univ.*) 1891; (*first year*); studying *History*.

Henry Bromfield Rogers Memorial Fellowship.

William Edward Burghardt DuBois, A.B. (*Fisk Univ.*) 1888, A.B. (*Harvard Univ.* 1890, A.M. (*Ibid.*) 1891; (*second year*); studying *History*.

The Robert Treat Paine Fellowship of Social Science was vacant during the year 1891–92.

Mr. Franklin withdrew from his fellowship in January, to accept an appointment as Professor of Physics at the State Agricultural College, Iowa, where he now remains; Mr. Hodder withdrew in March, for the purpose of going to Europe, and is continuing the study of Philosophy at the University of Berlin. Messrs. Brown, Collie, DuBois, Gibson, Gray, Hale, Miller, Walden, Ward, and Williams withdrew at the close of the academic year. At the close of the year, Mr. Ward was admitted to the degree of Ph.D. at this University; Messrs. Gray and Hale to the degree of Ph.D. at the University of Halle; Messrs. Brown, Foster, Hill, and Miller, to the degree of A.M. at this University; and Mr. Miller also to the degree of A.B. at this University. Mr. Brown now has charge of the Archives of the University and of the University Collection of material illustrating the history of the University, under the direction of the Librarian, and is also continuing his studies in History at this University; Mr. Collie is continuing his studies in the Graduate School, but has been appointed Professor of Geology at Beloit College, Wisconsin, and will leave Cambridge to enter on the duties of that chair in January 1893; Mr. DuBois has received an appointment to the scholarship established on the John F. Slater foundation, and is registered as a non-resident student of the Graduate School, continuing the study of Political Science at the University of Berlin; Mr. Gibson is temporarily in the employ of the United States Department of Labor, and is at Middletown, Connecticut; Dr. Gray is Professor of Political Economy at Northwestern University, Evanston, Illinois; Dr. Hale is Professor of the English Language and Literature at the State University of Iowa, Iowa City, Iowa; Mr. Miller is continuing the study of Philosophy at the University of Berlin; Dr. Walden is an Instructor at the Phillips Academy, Exeter, New Hampshire; Dr. Ward, as already stated, is an Instructor at the University of Michigan; and Mr. Williams is Instructor in Roman Law at this University.

The appointments to fellowships for the academic year 1892–93 are as follows: —

Mr. Chittenden was transferred from the Kirkland to a Parker Fellowship; Mr. Slocum was transferred from the Tyndall to the Harris Fellowship, and is now registered as a non-resident student, pursuing his studies at the University of Berlin; Messrs. Battle, Foster, Parker, and Scott, were reappointed to the fellowships which they held in the year 1891–92; and the following new appointments were made, the number of Morgan Fellowships having been increased by vote of the Corporation from six to eight: —

NON–RESIDENT FELLOWS.

Rogers Fellowships.

Richard Clarke Manning, Jr., A.B. 1888, A.M. 1892; studying *Classical Philology* at Bonn.

James Morton Paton, A.B. (*Univ. of City of New York*) 1883, A.B. (*Harvard Univ.*) 1884; studying *Greek Archaeology and Epigraphy* at the American School of Classical Studies, Athens.

Parker Fellowship.

George James Peirce, S.B. 1890; studying *Botany* at Bonn.

John Thornton Kirkland Fellowship.

Hugh Tallant, A.B. 1891, A.M. 1891; studying *Architectural Design* at Paris.

John Tyndall Scholarship.

Edgar Buckingham, A.B. 1887; studying *Physical Chemistry* at Leipzig.

RESIDENT FELLOWS.

James Walker Fellowship.

Pitt Gordon Knowlton, A.B. (*Oberlin Coll.*) 1890, A.M. (*Harvard Univ.*) 1892; studying *Philosophy*.

Morgan Fellowships.

Alexander Lee Bondurant, A.B. (*Hampden Sidney Coll.*) 1884, A.M. (*Ibid.*) 1892; studying *Classical Philology*.

William Wallace Clendenin, S.B. (*Missouri State Univ.*) 1886, S.M. (*Ibid.*) 1889, A.M. (*Harvard Univ.*) 1892; studying *Geology*.

Robert Wilson Cornelison, S.B. (*Univ. of Illinois*) 1890; studying *Chemistry*.

James Waterman Glover, L.B. (*Univ. of Michigan*) 1892; studying *Mathematics*.

David Frank Houston, A.B. (*So. Carolina Coll.*) 1887, A.M. (*Harvard Univ.*) 1892; studying *History and Political Science*.

Arthur Henry Pierce, A.B. (*Amherst Coll.*) 1888, A.M. (*Harvard Univ.*) 1892; studying *Philosophy*.

Ozias Goodwin Memorial Fellowship.

George Ole Virtue, A.B. (*Univ. of Kansas*) 1892, A.B. (*Harvard Univ.*) 1892; studying *Political Science*.

Henry Bromfield Rogers Memorial Fellowship.

Edward Leeds Gulick, A.B. (*Dartmouth Coll.*) 1883, A.M. (*Ibid.*) 1886; studying *Philosophy* (Ethics).

The Paine Fellowship of Social Science has, by a liberty permitted by the terms of the gift, and with the approval of the founder, been divided for the year 1892–93 into two scholarships, of which one has already been assigned. This foundation does not appear, therefore, at present, in the list of fellowships.

Forty-six scholarships, belonging to the University, were held by resident students in the Graduate School, during the academic year 1891–92.

The Virginia Barret Gibbs Scholarship was added to the above number in the course of the year, having been founded by Theodore K. Gibbs, Esq., of New York, with an annual income of two hundred and fifty dollars. It is to be assigned to "one or more students who may have shown decided talent in Zoölogy, and preferably in the direction of Marine Zoölogy." Each incumbent must be "either a graduate or student in some department of Harvard University, but not necessarily a candidate for a degree. His studies and researches may be conducted at the Natural History Laboratories of the Museum of Comparative Zoölogy at Harvard College, at the Newport Marine Laboratory, or at such European laboratories or other place on the seashore in this country or elsewhere, as may be approved by the Faculty of the Museum of Comparative Zoölogy, and by the Professors of Zoölogy and Comparative Anatomy of Harvard University." The appointment is made annually by the President and Fellows on the recommendation of the Faculty of the Museum and the Professors of Zoölogy and Comparative Anatomy. The income of this scholarship has for the present year been divided between three students, and is partly assigned on account of work during the last summer's vacation.

Besides the fellowships and scholarships which are wholly or primarily in the gift of the University, the Hemenway Fellowship, to be awarded to a student of American Archaeology and Ethnology, and the Scholarship of the Harvard Club of San Francisco, were named in my last annual report, as administered outside of the direct authority of the University for the benefit of students in the Graduate School. The income of the following foundations may also be bestowed on such students, at the discretion of their trustees: namely, the Humboldt Fund, for the encouragement of the study of Zoölogy; the Thaw Fellowship, for the benefit of a student of American Archaeology and Ethnology; and the Scholarship of the Rocky Mountain Harvard Club, which is this year held for the first time by a student of the Graduate School.

The number of candidates applying in the spring of 1892 for fellowships and scholarships to be held in the Graduate School during the academic year 1892–93 was two hundred and thirteen, of whom forty were candidates for reappointment or promotion. Thirty-eight additional applicants presented themselves in the course of the summer or at the beginning of the current academic year, making two hundred and fifty-one applicants in all. The regular assignment of fellowships and scholarships was arranged, as usual, before the end of the academic year; additional appointments being made during the vacation and early in the present year, on the occurence of vacancies. The whole award of fellowships and scholarships for the year 1892–93 constitutes a connected piece of business, properly belonging to the year 1891–92; and the whole matter, so far as it is now finished, is therefore embraced in this report. Some changes will undoubtedly be made in the course of the year in the list as it now stands; and some additional places may become available.

The following tables show the number of applications, the disposition made of them, and the classification of applications and appointments, for the two years 1890–91 and 1891–92; the persons counted as appointees being those who accepted and have actually entered on their appointments: —

	1890–91.		1891–92.	
Spring applicants for reappointment or promotion	34		40	
Spring applicants for a first appointment	146		173	
Later applicants	13	193	38	251
Appointed to fellowships	19		21	
Appointed to scholarships	46		48	
Appointed instructors or assistants	13		17	
Entered, or continued in, Graduate School without appointment	18		42	
Entered undergraduate classes	11		13	
Entered professional schools	9	116	4	145
Deduct for repetitions		0		8
At the University in the year following application		116		137
Not at the University		77		114
		193		251

	1890–91.		1891–92.	
	Applicants.	Appointees.	Applicants.	Appointees.
Students of Philology	45	18	76	24
Students of Philosophy, History, and Political Science	59	20	76	13
Students of Fine Arts, Architecture, etc.	0	0	2	1
Students of Mathematics, Physics, and Chemistry	41	15	51	19
Students of Natural History	30	12	33	12
Students in other branches, or proposing mixed courses, or without statement of purpose	18	0	13	0
	193	65	251	69
Students of the Graduate School at the time of application	53	28	69	32
Students of Harvard College at the time of application	37	15	38	8
Students of Professional Schools at the time of application	3	0	6	2
Former students in some department of the University	19	4	21	9
Persons never previously connected with the University	81	18	117	18
	193	65	251	69
Harvard A.B.'s, S.B.'s, A.M.'s, Ph.D.'s, and S.D.'s, not also graduated elsewhere	32	16	40	21
Harvard A.B.'s, S.B.'s, A.M.'s, Ph.D.'s, and S.D.'s, previously graduated elsewhere	12	5	24	10
Graduates of other institutions, and not of Harvard University	104	31	125	29
Harvard undergraduates not already graduated elsewhere	23	9	24	5
Undergraduates of other institutions and other non-graduates	22	4	38	4
	193	65	251	69

The above tables show that the increase from 1890–91 to 1891–92 in the number of applicants for fellowships and scholarships was thirty per cent.; that the increase in the number who did not come to the University was forty-eight per cent.; while the increase in the number who came to the University was only eighteen per cent., and in the number of appointments to fellowships and scholarships, hardly more than six per cent. The attention of all who are interested in the development of the Graduate School is urgently called to the proof here afforded of the growing inadequacy of our provision of fellowships and scholarships.

I pass next to the mention of some questions, relating to the Graduate School and the degrees of A.M., Ph.D., and S.D., which

occupied the attention of the various University boards during the academic year 1891–92, or which appear to be now growing ripe for consideration.

Since the year 1877, the degree of Doctor of Philosophy has, as in most of the universities which confer this degree, included that of Master of Arts. Its full title has been *Doctor of Philosophy and Master of Arts*, the higher distinction necessarily carrying the lower with it. Since 1883, the degree of Master of Arts has also been given as an adjunct to the first professional degree in Divinity, Law, and Medicine, and for the same course of study, to such students as, being qualified for candidacy for the degree of Master of Arts, have attained the professional degree with high credit. As thus used, it has been a separate and additional degree, not merged in the professional degree, conferred by a distinct act, through the recommendation of a different body, on students previously unknown to that body, and for a course of study for which the professional degree was also at the same time awarded. The original purpose of this arrangement was to strengthen the hands of the professional Faculties in their important undertaking of raising the standard and prolonging the period of study for the professional degrees; and so long as the degree of Master of Arts was in charge of the Academic Council, which comprehended the members of those Faculties, the system, however open to objection, was easily administered. But some obvious difficulties arose, when the control of the degree of Master of Arts passed into the hands of the Faculty of Arts and Sciences; and, at the same time, the professional schools had become so firmly established in their more advanced requirements as to be no longer in need of extraneous help. On the nearly unanimous recommendation of the University Council, the Corporation and Overseers have therefore voted to discontinue the practice of conferring the degree of Master of Arts with a professional degree for the same course of study, and also to sever the degree of Master of Arts from that of Doctor of Philosophy. But the system thus abolished will still be continued in the case of students who have entered on their studies for the degree of Doctor of Philosophy or for a professional degree as early as the beginning of the academic year 1891–92.

It is well to point out that the change of rule which has thus been effected will diminish the number of persons entitled to vote for members of the Board of Overseers, and will still further restrict the privileges not only of the professional schools, but of the Graduate School as well, in respect to that franchise. The franchise will be, as heretofore, necessarily attached to the degrees of A.B. and A.M., even when taken after only one year of residence and study at this

University; but it will not be attached to any professional degree, or to the degree of Bachelor of Science, Doctor of Science, or Doctor of Philosophy. In behalf of the Graduate School, I respectfully beg to urge the importance of correcting this inequality.

Professional students may still attain the degree of Master of Arts on studies pursued in a professional school and not offered or to be offered for a professional degree. Before the year 1883, this practice rested on the seventh Standing Vote of the Corporation and Overseers, of which the text is: —

"That the Academic Council be authorized to recommend for the degree of Master of Arts candidates otherwise properly qualified, who shall pursue at the University for at least one year, after taking the degree of Bachelor of Laws, Bachelor of Divinity, or Doctor of Medicine, in Harvard University, a course of study in Law, Theology, or Medicine, approved by the Academic Council, and shall pass a thorough examination on that course."

But in 1882, the Corporation and Overseers added to their sixth Standing Vote, — which affords the regular foundation of the degree of Master of Arts, providing for its attainment by "a course of liberal study," pursued "for at least one year at the University," — the following words: —

"The Council will designate, from time to time, those courses of instruction in the Professional and Scientific Schools which will be approved by it for the degree of A.M.;"

and in 1883, the following Standing Rule was adopted by the Academic Council: —

"The Academic Council will approve studies pursued in the Professional and Scientific Schools as constituents of the one year's course of liberal study to be pursued by candidates for the degree of Master of Arts; but no study in a Professional School or the Scientific School will be approved as part of such one year's course, unless the Council is satisfied that the candidate offering it has no intention or expectation of counting the same study towards the degree of Bachelor of Divinity, Bachelor of Laws, Doctor of Medicine, Bachelor of Science, or Civil Engineer."

This last rule was adopted simultaneously with that providing for the degree of Master of Arts being taken together with a professional degree and on the same course of study.

All these provisions, except that adjoining the degree of A.M. to a professional degree and for the same course of study, still stand; the powers of the Academic Council having passed to the Faculty of

Arts and Sciences, and the standing rules of the Academic Council having been adopted by that Faculty.

Since 1883, the method of taking the degree of Master of Arts provided by the seventh Standing Vote, cited above, has been wholly abandoned by candidates in Divinity and in Law; but it has continued to furnish the sole avenue to that degree for candidates in Medicine, not also candidates at the same time for the degree of M.D. There are, however, but few such candidates in Medicine, since the extension of the course for the degree of M.D.; so that the new practice, originated in 1883, is now altogether the prevailing one.

Most of the students who come up for the degree of Master of Arts under this practice are registered in their professional school, and not in the Graduate School; their professional studies are not merely "constituents" of their course offered for the degree of Master of Arts, but make up the whole of that course; and they are neither known to the Faculty of Arts and Sciences, nor working under its direction, nor pursuing studies which lie within the province of any of its committees. It is to be added that neither the Academic Council nor the Faculty have ever designated the courses of instruction in the Law School which they will approve for the degree of A.M.; and they have in fact been in the habit of accepting *any* courses, without discrimination; although a selection has been made among Divinity studies and (for students registered in the Graduate School) among Medical studies. Yet all recommendations for the degree of Master of Arts must proceed from the Faculty of Arts and Sciences, to which they now properly belong.

Such a system presents serious anomalies and practical inconveniences; and it may well be doubted whether, under the existing organization of the University, it serves any useful purpose. It appears to me to be clearly desirable that all candidates for the degree of Master of Arts be registered under the authority of the Faculty of Arts and Sciences; be subject to the constant supervision of that Faculty; and pursue studies which lie mainly, if not wholly, within its domain, and can be referred to some of its committees.

An interesting question, in its bearing on the welfare both of the College and of the Graduate School, is that which is presented by the increasing number of undergraduates who are able to prepare themselves for candidacy for the degree of Bachelor of Arts in less than the normal four years; and especially of those who, having nearly completed, in a creditable manner, the requirements for that degree at the end of their Junior year, wish to attain both that and

the degree of Master of Arts at the end of their Senior year. In the last two years, the Faculty have chosen the strongest cases thus presented to them, and have in such cases granted applications for admission to candidacy for both degrees, subject to the approval of the courses offered for A.M. by the Administrative Board of the Graduate School and to the nomination for the degree to the Faculty at the close of the year by that Board. In these two years, ten students have been thus recommended for the two degrees at the same time; and the Corporation and Overseers have consented to confer the degrees on these students. But the practice is judged to be in conflict with the Standing Votes of the Corporation and Overseers, and is therefore to be discontinued. It must, however, be emphatically urged on all who have at heart the higher interests of the University that there is need of some provision for such cases as those which have been exceptionally dealt with in the past two years. The tendency on the part of many of the abler and more mature College students to press forward the course of their undergraduate work, so as to gain more time for professional study, or for higher scholarship, or for the serious business of life in whatever form, is a fact with which we cannot refuse to reckon. It is one of the abundant signs of the growing importance of thorough professional training for the duties of life, and of the recognition of its importance by intelligent young men. It is a legitimate fruit of that system of education, now deeply grounded in Harvard College, which developes the sense of responsibility and an independent spirit in its students. This is not therefore a transient question, but one which must be wisely considered as a matter of permanent policy. It may well be that the temporary solution which has been adopted for the last two years is not the best; and I have already suggested, in my last annual report, that these cases point to the desirability of some advance in the requirements for the degree of Master of Arts. But, even if such advance be adopted, the difficulty will still present itself; and some amendment of the Standing Votes to meet the question presented by these cases seems to be a distinct necessity.

The Standing Votes which have been several times referred to in the above paragraphs were first adopted by the Corporation in December 1871; the Overseers concurring in January 1872. Since then, they have remained substantially unchanged; although a few amendments have been introduced, of which the latest were those adopted in 1882. These Standing Votes form the constitution or fundamental law of the Graduate Department; — a law laid down in the main before the department had come into existence. The

experience of the past twenty years has thrown plentiful light on the conditions under which our higher work can be most successfully and usefully carried on; and the recent rapid growth of our School gives a new form to the whole problem. It is not surprising that our constitution needs to be amended, and not only amended, but thoroughly revised and redrawn on somewhat different lines.

Whenever this work is taken up, I hope that a leading aim will be to free the Standing Votes from all attempt at regulating matters of detail, and to make the system of the Graduate School and of the higher degrees easily adjustible to changing circumstances and enlarging views, by placing the control of it as fully as possible in the hands of the Faculty of Arts and Sciences. It should rest with that Faculty, under a few very brief and general prescriptions, to determine the departments of study in which the degrees of Doctor of Philosophy and Doctor of Science may be taken, the special conditions affecting the several degrees, the standard to be maintained for each, and the qualifications for candidacy of all students of the University. The present Standing Votes were necessary in their day as giving distinct shape to a projected system which had been arrived at by consultation among persons interested in the then new movement, and which no academic body was in a position to establish by a formal act. They contain many particulars which ought now to be regulated by the judgment of the Faculty and to be subject to their amendment; and prescribe conditions which have been found irksome or without important significance in practice.

Among the details which, as it seems to me, lie properly within the discretion of the Faculty, are the requirements as to *time of residence and study* for the degrees of Doctor of Philosophy and Doctor of Science. The statutes of the University demand *one year* of resident study for any ordinary degree; and this is all. Except in the case of the two degrees just cited, any Faculty of the University has the power to admit students to advanced standing, provided one year's residence is always required for a degree. But this liberty is not accorded to the Faculty of Arts and Sciences in dealing with the degrees of Ph.D. and S.D. *Two years* of residence are required for those degrees, except in certain narrowly specified cases.

I can find no reason for this restriction. On the contrary I am strongly disposed to believe that the dignity and value of the degrees of Ph.D. and S.D. would be enhanced by the complete abolition of all time restrictions affecting them, with the exception of that general one of *one year's residence* which is imposed by the statutes. It would thus be far more strongly emphasized than at present that these important distinctions rest on no enumeration of courses, on no

computation of time, and on no regard to rights acquired by the faithful fulfilment of a determinate programme. Nor do I believe that there would be any danger of thus lowering the standard of these degrees; since that standard really rests on the firm purpose and the high ideals maintained by the several committees.

Especially does a change seem called for in the case of students who have pursued graduate studies at another university, either in this country or in Europe, and who wish to present themselves as candidates for one of our doctorates after a single year of study here. The custom of offering residence at one university to count as residence at another is well established in Germany, and has had an important influence in the development of the university system of that country. In our own country there are already many institutions of learning, — and the number is constantly increasing, — at which advanced studies are provided for and may be profitably carried on. Is it not a duty which we owe to these institutions, as a matter of comity, to strengthen them in their efforts to do higher work by admitting their graduate students, under suitable conditions, to *advanced standing* as candidates for our own degrees, whenever we are satisfied, in the individual case, that such admission is really justified? The true basis of a recommendation for the degree of Doctor of Philosophy or Science is that the Committee in the proper Division is satisfied that the candidate has reached the point of high attainment and independent power which that degree at this University connotes. The committee are little likely to be inclined to recommend, without sufficient reason, a student who has been only one year under their own charge. When they do find themselves impelled to put forward such a student as qualified to receive the highest academic honor which the University can bestow and to bear the seal of its best scholarship, ought any merely technical computation of time to stand in the way of the award? Should we not, at any rate, so frame our rules as to present the most hospitable and gracious aspect to students who seek to come to us from other institutions; while, both for them and for our own graduates, we still earnestly maintain the high standard for the actual attainment of our degrees which we have always sought to insist on?

JAMES MILLS PEIRCE, *Dean.*

24 DECEMBER 1892.

THE DIVINITY SCHOOL.

To the President of the University:

Sir, — As Dean of the Divinity Faculty, I beg to submit the following report for the academic year 1891–92: —

Forty students were connected with the Divinity School, as follows: —

Resident Graduates	11
Senior Class	5
Middle Class	6
Junior Class	12
Special Students	6

Eleven Theological Schools were represented in the Graduate Department, namely: —

Bangor	1
Cambridge Episcopal	1
Chicago	1
Doshisha	1
General	1
Halifax	1
Harvard	1
Meadville	2
Oberlin	2
Pacific	1
Princeton	1

Fifteen Colleges and Universities were represented in the School, namely: —

Antioch	1	Haverford	1
Bowdoin	2	Knox	1
Boston (Univ.)	1	St. Francis Xavier	1
Colby "	2	Trinity (N. C.)	1
College of the City of New York	1	University of Indiana	1
Dalhousie	1	University of Michigan	1
Doshisha	3	University of Nebraska	1
Harvard	12		

Two hundred and thirty-two elections were made by students of of the College, of courses that were originally Divinity School courses.

In a former report I referred to the fact that the School has to start every year, to a very large extent, afresh, because so many men

remain in it not more than one or two years. This is so important an aspect to the present condition of the School, that further illustrations may be in place. Of the forty members of the School of last year, only eleven had remained over from the preceding year, twenty-nine being new men. Of the forty present last year only fifteen remain over to the present year. An analysis of the School of the last, as compared with that of the current year, shows that of the Resident Graduates two still remain. The members of the Senior Class left as a matter of course. Of the Middle Class, one left in order to take a parish; one on account of ill health. One left in order to join the Graduate Department of the College; the chief reason assigned being that there he could have full liberty to preach. Another reason was perhaps, the attraction of a wider range of studies. One left to go into the active work of the ministry, and one to be a teacher of philosophy. Four had joined the School intending to remain only one year and, after taking the degree of A.M., left in order to enter denominational schools with advanced standing. Thus of a Junior class of twelve, there remain only five to enter the present Middle Class. Of Special Students, two left to enter upon the work of the preacher, one after one year, and one after two years of residence in the School. Two others left after one year's residence, probably for the reason that they had changed their plans in regard to a profession.

The great causes of change are thus found in the following facts, namely, that so large a proportion of the students have already graduated from other schools; that entrance into the ministerial work, especially in small parishes, is so easy, at least in the Unitarian denomination, where the demand for ministers is very great; and that candidates for the ministry prefer for the most part to graduate at the schools of the denominations with which they propose to work. To these causes may be added the fact that to some young men it seems a very easy thing to preach, and a careful professional training seems useless.

This statement shows that the teaching of the School reaches more men than its numbers, especially the number of its graduates, would seem to imply.

This disproportion between the number of graduates and the work actually done, is especially marked in the fact that so many of its courses are attended, some of them largely, by students of the College. Indeed the relation between the Divinity School and the College is becoming so close as to suggest a possible absortion of the School into the Graduate Department of the latter; a return, that is, to the original relation of Theological instruction to the University.

Should the fee of the School be raised to an equality with that of the College, this change will become, in my judgment, very soon unavoidable.

In spite of the lack of stability of attendance, the School has been for the last twenty years steadily, though slowly, increasing. It may be interesting to illustrate this by a statement of the attendance during a series of years. Beginning with the year 1872–73 and ending with the year 1892–93, the yearly attendance has been as follows: 20, 22, 20, 19, 23, 21, 23, 23, 23, 29, 27, 21, 26, 25, 20, 16, 26, 35, 41, 40, 41. For the first six of these years the figures play about 20. For the five years following, with one exception, the number is fixed at 23. Then rising one year to 29, and sinking one year to 16 the figures play about 24 or 25. Then the numbers rise to 35, and for the last three years it has been about 40.

The only constituency upon which the School can absolutely rely is the Unitarian body, which is comparatively small. I believe, however, that the value of undenominational divinity schools will be more and more recognized. It may not be out of place to refer to a movement recently started in this direction in Colorado. It must be admitted that our School will not fully realize the idea of an undenominotional seminary, until there can be in it an election between courses representing different systems of Theology, as there is in the College between courses representing different philosophical systems. With one or two professorships founded to carry out this idea and ably filled, I believe that the School would, so far as numbers are concerned, worthily fill its place in the University. The advantage to theological study would also be great. It is to be wished that some friend, or friends, of the University would provide for this extension of the work of the School. Meanwhile it is accomplishing all that could reasonably be expected of it under existing circumstances.

The work of the School last year was somewhat crippled by the absence of Professors Thayer and Peabody. The place of Professor Thayer was partially filled by Francis Albert Christie, A.B., who met classes for the study of the New Testament four times a week. He was very successful in interesting the students in his work. In the absence of Professor Peabody, courses on Pastoral care and the conduct of worship were given by Brooke Herford, D.D., and William Jewett Tucker, D.D. These lectures were listened to with pleasure and profit by a large number of students. The advanced work in Homiletics was successfully carried on by Edward Hale, A.B., B.D., who has for some years had charge of the introductory portion of the study of Homiletics.

The Conferences in the Departments of the Old and New Testaments and the Seminary in that of Church History were held as usual.

The following statement represents the instruction given in the School:—

COURSES OF INSTRUCTION, 1891–92.

OLD TESTAMENT.

Professor Lyon. — Hebrew (First Course). — Davidson's Grammar. — Half of Genesis, twenty-three Psalms, and (at sight) several chapters in the second half of Genesis. 3 hours. 6 Col., 5 Div.

Professor Toy. — Hebrew (Second Course). — Syntax. — Interpretation of parts of the Prophets and the poetical books. 2 hours. 3 Col., 5 Div.

Professor Lyon. — Kautzsch's Aramaic Grammar. — Daniel and Ezra (Aramaic portions). — Targum of Onkelos (Gen. 1–5, Ex. 1–7, 20, 21, 32–34). 2 hours. 2d half-year. 3 Col., 2 Div.

Professor Lyon. — Revised Version of the Old Testament. — Lectures on Hebrew History from the Judges till the Babylonian Exile. 2 hours. 39 Col., 14 Div.

Professor Toy. — History of pre-Christian Hebrew Literature. 1 hour. 1st half-year. 5 Col., 15 Div.

Professor Toy. — History of the Hebrew Religion, with comparison of other Semitic Religions. 2 hours. 19 Col., 9 Div.

Professor Lyon. — Lyon's Assyrian Manual. — Abel und Winckler's Keilschrifttexte (pp. 18, 22–27). 2 hours. 2 Col., 1 Div.

Professor Lyon. — Same books as in Old Testament 7. In Keilschrifttexte, pp. 1–26, 30, 31, 38–38, 40–45, 47, 48, 51–53, 58, 59. 2 hours. 1 Col., 2 Div.

NEW TESTAMENT.

Lectures on the Text and Language of the New Testament. — Special Study of the Parables. — The Teachings of Jesus. 2 hours. 13 Div.

Mr. Christie. — Lectures on the Life of Paul. — Study of the Epistles. 2 hours. 6 Div.

Professor Lyon. — Classical Aramaic (Syriac). — Grammars of Nestle and Nöldeke. — Rödiger's Chrestomathy. — The Peshitto Version of the New Testament. 2 hours. 1st half-year. 3 Col., 2 Div.

CHURCH HISTORY.

Professor Emerton. — The Middle Ages from Charlemagne to Dante. — Foundation of the European States. — The Holy Roman Empire. — The Roman Papacy as the controlling force in European Life. 3 hours. 2d half-year. 100 Col., 4 Div.

Professor EMERTON. — The Era of the Reformation in Europe from the rise of Italian Humanism to the close of the Council of Trent, 1350–1563. 2 hours. 24 Col., 4 Div.

Professor EMERTON. — History of Christian Doctrines. 2 hours. 8 Div.

Professor EMERTON. — Advanced Study and Research in connection with the Seminary in Mediaeval History. Special topic: Relations of Church and State. 1 hour. 2 Col.

COMPARATIVE RELIGION.

Professor EVERETT. — Studies in the Comparative History of Religions, particularly the Vedic Religion, the Hindu Philosophies, Buddhism, Mazdaism, and the Chinese Religions. 2 hours. 13 Col., 9 Div.

THEOLOGY.

Professor EVERETT. — Systematic Theology begun: The Psychological basis of Religious Faith. 3 hours. 9 Col., 13 Div.

Professor EVERETT. — Systematic Theology continued: The Content of Christian Faith. An elaborate essay on some Theological subject is expected from each student taking this course. 1 hour. 1 Col., 23 Div.

HOMILETICS AND PASTORAL CARE.

Mr. HALE. — The Structure and Analysis of Sermons. 13 Div.

Mr. HALE. — Each student writes six sermons during the year, three of which are preached before the two upper classes and criticised by students and Instructor; the rest are criticised privately, both as to composition and delivery, and are preached at a weekly religious exercise of the School which is open to the public. 12 Div.

Dr. HERFORD. — Pastoral Care and the conduct of Worship. 1st half-year.

Dr. TUCKER. — Pastoral Care and the conduct of Worship. 2d half-year.

ELOCUTION.

Mr. CHURCHILL met the students, generally in small groups, for instruction in Elocution. He was here one day in the week during the year. 23 Div.

GENERAL EXERCISES.

Every Friday evening there was preaching in the Chapel of the School by students. This was open to the public. — Meetings for Religious Conference, conducted by the students, were held once in two weeks. — The meetings of the Debating Club alternated with the above. — Morning Prayers, conducted by students and teachers.

The following tabular statement represents the changes in the Divinity Library during the year ending September 1, 1892: —

	Vol.	Pam.
In the Library, Oct. 1, 1891	23,200	3,671
Added by purchase, Oct. 1, 1891, to Sept. 30, 1892	246	4
Added by gift, Oct. 1, 1891, to Sept. 30, 1892	542	1,137
	23,988	4,812
Less duplicates sold	178	2
	23,810	4,810
Increase in volumes, decrease in pamphlets by binding	217	310
In the Library, Oct. 1, 1892	24,027	4,500

The chief gift of the year was from the children of Rev. Dr. Thomas Hill, and consisted of 222 volumes and 314 pamphlets from the library of their father. This gift included a large number of the works of Dr. Priestley, which with those we already possessed, makes our collection of his theological works a remarkably full one, including now 94 titles.

During the year 2500 titles were catalogued in the author catalogue, and 1026 in the subject catalogue. These numbers are not as large as in other years. This is partly due to the fact that the assistants were here less in the vacations (their number of hours being about a tenth less than the year before), but more because their time was given to other work besides cataloguing. There were many respects in which matters connected with the Library were in confusion, and the need of setting these in order seemed more pressing than the work of cataloguing alone. Then, too, as the Library gains in importance there are more things to be attended to, both by me and by the assistants, if the Library is to be administered as it should be.

From Oct. 1, 1891, to Sept. 30, 1892, there were borrowed from the stack for home use 831 volumes, and for hall use 214 volumes; and from the reserved books for over-night use 655 volumes. Except in respect to the reserved books, these figures show a slight increase over those of the year before.

C. C. EVERETT, *Dean.*

THE LAW SCHOOL.

To the President of the University:

Sir, — I beg to submit the following report upon the Law School for the academic year 1891–92: —

The table on p. 114 gives the courses of study and instruction during the year, the names of the instructors, the text-books used, the number of exercises per week in each course, and the number of students who offered themselves for examination in each course at the end of the year.

Instructors	Studies and Text-books	Exercises per week.	No. of students examined.
	FIRST YEAR.		
Prof. Williston	Contracts. Langdell's Cases on Contracts	3	157
Prof. Gray	Property. Gray's Cases on Property, vol. 1, 2	2	151
Prof. Smith	Torts. Ames's Cases on Torts	2	155
Prof. Williston	Civil Procedure at Common Law. Ames's Cases on Pleading	1	154
Mr. Beale	Criminal Law and Procedure. Chaplin's Cases on Criminal Law	2	145
	SECOND YEAR.		
Prof. Smith	Agency. No text-book	2	71
Prof. Williston	Bills of Exchange and Promissory Notes. Ames's Cases on Bills and Notes	2	40
Prof. Ames	Contracts. Keener's Cases on Quasi-Contracts	2	86
Prof. Thayer	Evidence. No text-book	2	91
Prof. Langdell	Jurisdiction and Procedure in Equity. Langdell's Cases in Equity Pleading	2	19
Mr. Beale	Law of Carriers. No text-book	2	27
Prof. Gray	Property. Gray's Cases on Property, vol. 3, 4	2	112
Prof. Thayer	Sales of Personal Property. Langdell's Cases on Sales	2	53
Prof. Ames	Trusts. Ames's Cases on Trusts	2	106
	THIRD YEAR.		
Prof. Thayer	Constitutional Law. No text-book	2	29
Prof. Smith	Corporations. No text-book	2	61
Prof. Langdell	Jurisdiction and Procedure in Equity. No text-book	2	36
Prof. Ames	Partnership. Ames's Cases on Partnership	2	51
Prof. Gray	Property. Gray's Cases on Property, vol. 5, 6	2	29
Prof. Langdell	Suretyship and Mortgage. No text-book	2	17
Prof. Smith	Agency. No text-book	2	12
Prof. Williston	Bills of Exchange and Promissory Notes. Ames's Cases on Bills and Notes	2	32
Prof. Ames	Contracts. Keener's Cases on Quasi-Contracts	2	3
Prof. Thayer	Evidence. No text-book	2	4
Prof. Langdell	Jurisdiction and Procedure in Equity. Langdell's Cases in Equity Pleading	2	2
Mr. Beale	Law of Carriers. No text-book	2	10
Prof. Thayer	Sales of Personal Property. Langdell's Cases on Sales	2	4
Prof. Ames	Trusts. Ames's Cases on Trusts	2	2

The following table exhibits the attendance at the School during the last twenty-two years: —

Year.	Whole no. of students.	No. present during the whole year.	No. present only part of the year.	Average number.
1870–71	165	107	58	136
1871–72	138	107	31	123
1872–73	117	109	8	113
1873–74	141	121	20	131
1874–75	144	130	14	137
1875–76	173	153	20	163
1876–77	199	168	31	184
1877–78	196	172	24	183
1878–79	169	137	32	154
1879–80	177	138	39	157
1880–81	161	136	25	149
1881–82	161	139	22	146
1882–83	138	120	18	129
1883–84	150	130	20	140
1884–85	156	139	17	148
1885–86	158	142	16	151
1886–87	188	160	28	174
1887–88	225	197	28	211
1888–89	225	198	27	212
1889–90	262	229	33	245
1890–91	285	255	30	272
1891–92	370	337	33	354

The following table exhibits the School as divided into classes since the establishment of the three-years' course and the examination for admission: —

Year.	1877–78.	1878–79.	1879–80.	1880–81.	1881–82.	1882–83.	1883–84.	1884–85.	1885–86.	1886–87.	1887–88.	1888–89.	1889–90.	1890–91.	1891–92.
First	72	63	78	57	61	59	58	75	55	75	89	74	90	106	143
Second	79	50	32	58	41	38	40	37	46	47	55	66	59	73	112
Third	.	.	21	14	25	20	22	17	17	24	33	27	52	45	48
Special Students	31	47	46	32	34	21	30	28	40	42	46	58	62	61	67

In regard to the last table, it is to be observed that, although the three-years' course went into operation at the beginning of 1877–78, there was no third-year class until 1879–80. It is also to be observed that the second-year class of 1877–78 did not take the three-years' course, but was graduated at the end of the second year, that class having entered the School before the three-years' course went into operation.

The following table exhibits the results of the examinations for admission in each year since they were established: —

	1877-78.	1878-79.	1879-80.	1880-81.	1881-82.	1882-83.	1883-84.	1884-85.	1885-86.	1886-87.	1887-88.	1888-89.	1889-90.	1890-91.	1891-92.
Offered	16	15	18	25	19	12	12	17	17	14	33	15	20	28	38
Admitted	7	7	12	13	16	10	5	11	7	6	17	11	10	11	18

The following table exhibits the results of the examinations for a degree in each year since the establishment of the three-years' course: —

Year.	First year.			Second year.			Third year.		
	Offered.	Passed.	Failed.	Offered.	Passed.	Failed.	Offered.	Passed.	Failed.
1877–78	66	51	15	66	47	19	.	.	.
1878–79	50	42	8	40	39	1	.	.	.
1879–80	73	69	4	28	26	2	22	18	4
1880–81	45	43	2	49	46	3	18	18	0
1881–82	49	44	5	38	37	1	36	33	3
1882–83	46	44	2	36	34	2	21	19	2
1883–84	51	41	10	35	31	4	26	25	1
1884–85	61	56	5	30	29	1	23	19	4
1885–86	54	48	6	41	38	3	18	18	0
1886–87	66	59	7	40	38	2	26	26	0
1887–88	80	70	10	43	34	9	33	32	1
1888–89	72	66	6	58	55	3	30	29	1
1889–90	86	75	11	52	49	3	51	47	4
1890–91	107	102	5	62	54	8	47	46	1
1891–92	134	130	4	100	91	9	62	55	7

In regard to the foregoing table it is to be observed that it includes no Special Students, and hence that all the applicants included in it were either graduates of colleges or had passed the examination for admission. Of course this remark does not apply to the second-year class of 1877–78, and this accounts in part for the much greater number of failures in that class.

The following table exhibits the number of students who have received the honor degree in each year since it was established: —

1879–80.	1880–81.	1881–82.	1882–83.	1883–84.	1884–85.	1885–86.
7	3	10	10	5	5	7
1886–87.	1887–88.	1888–89.	1889–90.	1890–91.	1891–92.	
9	9	12	14	17	11	

The following table exhibits the number of students who, since the establishment of the three-years' course, have been examined for a degree in the studies of any year without having been members of the School during that year: —

Year.	First year.			Second year.			Third year.		
	Offered.	Passed.	Failed.	Offered.	Passed.	Failed.	Offered.	Passed.	Failed.
1877–78	5	2	3	.	.	.	.	.	.
1878–79	3	2	1	.	.	.	.	.	.
1879–80	6	4	2	1	1	0	5	4	1
1880–81	6	4	2	.	.	.	4	4	0
1881–82	2	1	1	.	.	.	10	8	2
1882–83	3	3	0	.	.	.	3	2	1
1883–84	7	6	1	.	.	.	3	3	0
1884–85	3	2	1	.	.	.	6	4	2
1885–86	4	3	1	.	.	.	2	2	0
1886–87	3	3	0	.	.	.	4	4	0
1887–88	5	3	2	1	0	1	2	2	0
1888–89	12	8	4	.	.	.	3	3	0
1889–90	7	6	1	.	.	.	.	.	.
1890–91	11	9	2	1	0	1	1	1	0
1891–92	13	11	2	.	.	.	3	3	0

The following table exhibits the number of students who have entered the School in each year during the last twenty-two years, and shows how many of them were graduates of colleges; and of the latter, how many were graduates of Harvard and how many of other colleges: —

Year.	Whole number of entries.	Graduates of colleges.	Harvard graduates.	Graduates of other colleges.	Non-graduates.
1870–71	105	60	19	41	45
1871–72	92	56	26	30	36
1872–73	87	47	22	25	40
1873–74	95	58	29	29	37
1874–75	102	55	40	15	47
1875–76	119	67	39	28	52
1876–77	128	77	47	30	51
1877–78	111	79	47	32	32
1878–79	102	62	38	24	40
1879–80	124	76	59	17	48
1880–81	91	60	41	19	31
1881–82	97	53	29	24	44
1882–83	84	56	33	23	28
1883–84	86	61	47	14	25
1884–85	101	79	56	23	22
1885–86	88	60	35	25	28
1886–87	113	80	46	34	33
1887–88	134	82	52	30	52
1888–89	111	77	50	27	34
1889–90	153	102	66	35	52
1890–91	160	107	65	42	53
1891–92	211	132	59	73	79

The following table exhibits the average age at which students have entered the School in each year since 1873–74, that being the first year in which a record of ages was kept; also the age at which Harvard graduates, graduates of other colleges, and non-graduates respectively, have entered the School in each year since 1873–74; also the average age at which students have entered the School during the whole period since 1873–74; also the average age at which Harvard graduates, graduates of other colleges, and non-graduates respectively, have entered the School during the whole period since 1873–74: —

Year.	Of whole number of entries.	Of Harvard graduates.	Of graduates of other colleges.	Of non-graduates.
1873–74	23.34	23.58	23.76	22.83
1874–75	22.71	23.66	22.78	21.88
1875–76	22.98	22.35	23.28	23.28
1876–77	22.33	22.83	22.49	21.76
1877–78	23.34	23.25	23.83	22.97
1878–79	22.56	23.14	22.88	21.81
1879–80	23.20	23.46	22.77	23.02
1880–81	22.36	22.66	23.11	21.50
1881–82	22.68	23.06	23.73	21.85
1882–83	22.73	22.94	23.12	22.13
1883–84	22.64	23.17	22.86	21.53
1884–85	22.68	23.33	22.10	21.65
1885–86	22.73	23.21	22.84	22.03
1886–87	22.90	23.31	24.00	21.50
1887–88	22.86	23.33	23.42	22.07
1888–89	23.07	23.26	23.84	22.23
1889–90	22.91	23.19	22.88	22.42
1890–91	23.29	23.57	23.20	23.03
1891–92	22.68	22.80	23.63	21.71
1873–74 to 1891–92	22.85	23.19	23.27	22.19

The increase in the number of students, in the year under review, was unprecedented, the total number in the School during the year having risen from 285, in the previous year, to 370 (370 — 285 = 85), the number in the School during the whole of the year, from 255 to 337 (337 — 255 = 82), and the average number, from 272 to 354 (354 — 272 = 82), while the number who were in the School but a part of the year increased only by 3 (33 — 30 = 3). The largest increase in any previous year was in 1887–88, the total number of students in the School during that year having risen from 188 in the previous year to 225 (225 — 188 = 37), the number in the School during the whole of the year, from 160 to 197 (197 — 160 = 37), and the average number from 174 to 211 (211 — 174 = 37), while the

number who were in the School but a part of the year was unchanged ($28 - 28 = 0$). The year 1889–90 showed the same increase in the total number of students in the School during the year ($262 - 225 = 37$), but a smaller increase in the number who were in the School during the whole of the year ($229 - 198 = 31$), as well as in the average number ($245 - 212 = 33$), while the number of those who were in the School but a part of the year increased by 6 ($33 - 27 = 6$).

In respect to the number of students who entered the School during the year, the year under review is also unprecedented, the number having risen from 160, in the previous year, to 211 ($211 - 160 = 51$), while the largest increase in any previous year was 42 in 1889–90 ($153 - 111 = 42$).

The year under review is also unprecedented in respect to the increase in the number of students appearing in the annual Catalogue, the number having risen from 279, in the previous year, to 363 ($363 - 279 = 84$), while the largest increase shown in any previous year was 37 in 1889–90 ($254 - 217 = 37$). In respect to the distribution of the School into classes, most of the increase, in the year under review, will be found in the first year class and the second year class, the first year class having increased from 106 in the previous year to 143 ($143 - 106 = 37$), and the second year class, from 73 to 112 ($112 - 73 = 39$).

Of the students who entered the School during the year under review, it must be confessed that a smaller proportion than usual were graduates of colleges, the proportion being less than two thirds ($\frac{132}{211} = .626$), — a thing which has happened only twice before within the last ten years, namely, in 1887–88 ($\frac{82}{134} = .612$) and in 1889–90 ($\frac{102}{153} = .667$). In respect to the graduates of colleges who entered (132), the year was distinguished for its great increase in the number of graduates of other colleges than Harvard, the number of such graduates having increased from 42, in the previous year, to 73 ($73 - 42 = 31$), while the number of Harvard graduates actually decreased by 6 ($65 - 59 = 6$).*

In the current year, while there has been an increase in the number of students, the increase has not been as large as was anticipated a year ago. The increase in the number of new entries, over those at the corresponding date in 1891–92, is indeed only nominal ($210 - 205 = 5$), while the increase in the total number of students, as shown in the annual Catalogues for 1891–92 and 1892–93 respectively, is substantial ($394 - 363 = 31$). Still, it is rather in respect

* See, however, *infra*, p. 121.

to the total number of students in the School than in respect to the number of new entries, that expectations have not been fully realized. As the increase in the number of new entries was so abnormally large in 1891–92, the School was not expected in the current year to do more than hold its own in respect to new entries. At all events, I do not think any one counted upon its doing more. It was expected, however, that a larger number of old students would return to the School in the current year than have returned in fact; and in particular that a larger number of the 211 students who entered the School in 1891–92 would return to the School than have returned in fact. Of these 211, only 125 are now in the School, the remaining 86 not having returned. These 86 can, however, be satisfactorily accounted for, for 12 of them (not an excessively large number) withdrew from the School soon after entering, were not charged any tuition fee, and their names did not appear in the annual Catalogue, while 50 failed to pass the necessary examinations and, therefore, could not have returned to the School. Of those, therefore, who entered in 1891–92, and actually became members of the School (199), 149 only were qualified to return to the School in the current year, and all but 24 of these are now in the School; and of the 24 who did not return, 8 are known to have entered the School with the intention of remaining only one year, and two graduated. Of the 50 who did not pass the necessary examinations, 16 left the School before the end of the year, 9 tried to pass the necessary examinations but failed to pass them, and the remaining 25 did not offer themselves for examination in the necessary number of subjects. To what extent a failure to pass the necessary examinations was the cause of men's not returning to the School, and to what extent it was a consequence of their not intending to return, it is impossible to say.

If we look at the composition of the 125 students who entered in 1891–92, and are still in the School, we find it to be very satisfactory, for the 125 include every one of the 14 who passed the best examinations in the studies of the first year, and all but 9 of the 75 who passed the best examinations in the same studies.

If we compare the several classes in the current year with those of 1891–92, we find that the first year class is smaller by 8, the second year class larger by 7, the third year class larger by 21, and the class of Special Students larger by 4. Notwithstanding the large increase in the third year class, it looks rather small when the size of the same class in 1891–92 (112) is considered; but it must be remembered that the second year class of 1891–92 contained no less than 10 members who, though they had not succeeded in gaining admission into

the third year class, yet were entitled to graduate at the end of the year. Even as it is, the present third year class contains 4 men who gained admission to it by special votes of the Faculty, and who, according to the rules by which all such questions have heretofore been governed, would be in the second year class.

The number of College graduates who have entered the School thus far during the current year (122 out of 210) is less by 10 than the whole number who entered in 1891–92 (132 out of 211); the number of Harvard graduates is less by 2 (59 — 57 = 2); the number of graduates of other colleges is less by 8 (73 — 65 = 8); and the number of non-graduates is greater by 9 (88 — 79 = 9). It is to be noted, however, that 12 of the 88 non-graduates are Harvard men who, having done all or nearly all the work required of them by the College, are granted a leave of absence during the current year; and presumably they will all receive their degrees from the College in June next. For all practical purposes, therefore, they are to be regarded as Harvard graduates. There were 5 men similarly situated in 1891–92, all of whom received their degrees from the College in June last. If then we treat these 12 and these 5 as Harvard graduates, we shall have 3 less of College graduates in the current year than in 1891–92 (137 — 134 = 3), 5 more Harvard graduates (69 — 64 = 5), and 2 more non-graduates (76 — 74 = 2).

The falling off in graduates of other colleges (73 — 65 = 8) is more than accounted for by the falling off in Yale graduates (18 — 8 = 10). Even with this falling off, however, the number of Yale graduates who have entered the School during the current year (8) is greater by 2 than have entered in any previous year since 1870–71, except the year 1891–92 (18).

The current year is distinguished for the large number of non-graduates who were examined for admission, no less than 62 having been examined, and 32 having passed satisfactory examinations. In 1891–92 only 38 were examined, and only 18 passed satisfactory examinations; and yet 1891–92 surpassed all previous years, both in the number who were examined, and the number who passed satisfactory examinations. This seems to indicate that the exclusion from the School hereafter of all non-graduates who do not pass the admission examinations is likely to have less effect in diminishing the size of the School than it has been expected to have. As, however, the requirements for admission are hereafter to be increased, it may be that a smaller proportion than heretofore of those who are examined will succeed in passing the examinations.

Since the date of my last report, means have been found of so enlarging the students reading room as to give 38 more very desirable

seats, thus making 242 in all. In consequence of this increase of space and of seating capacity, the reading room, notwithstanding the increased size of the School, is less crowded than it was a year ago. The enlargement has not been accomplished without considerable expense, but its expense has been its only drawback; for, so far from its being any injury to the building, it has improved its interior very materially.

Since the date of my last report, it has been decided to increase the usefulness of the Library by providing it with another copy of every set of English and American reports which is used to any considerable extent. With a view to the speedy accomplishment of this object, the Librarian made a trip to England during the last summer vacation, and, while there, he succeeded in purchasing, on very favorable terms, 1377 volumes of English reports, making, with extra sets of English reports already belonging to the Library, 1637 volumes. We have also availed ourselves, and are still availing ourselves, of every good opportunity to purchase another copy of every set of American reports of which another copy is at all needed, and our purchases of such reports already amount to 508 volumes. When this plan has been fully accomplished, the Library will have three copies of all the more important sets of English and American reports, and of several sets it will have four copies.

One consequence of this enlargement of the Library will be that the lower floor of the "stack" will have to be given up entirely to reports; and hence all treatises and statutes will have to be relegated to an upper and less accessible floor.

In connection with the enlargement of the Library, and of the students reading-room, a second delivery desk has been put in, and is already in use. We now have, therefore, a delivery desk at each end of the "stack," and the plan is to have each delivery desk served by a separate copy of reports, at its own end of the "stack."

At the beginning of the current year, it was found necessary to divide the first year class, in all the subjects but one, into two sections; and a consequenee of this has been to increase the number of lectures per week (exclusive of lectures on extra subjects in which no examinations are held) from 40 to 48; and, as lectures are delivered on five days only in each week, the result is, that there are, on an average, within a small fraction of 10 lectures on each of the five days. Moreover, as we have only three lecture rooms, it follows that, on an average, three lectures and a fraction are delivered in each lecture room on each of the five days. This would not of course be an excessive number, if the lectures could be distributed through the day. In fact, however, the four hours between 9 A.M. and 1 P.M.

are so much more desirable for lectures than any other hours of the day, that it is quite impracticable to have lectures at other hours merely to avoid using the lecture rooms for too many consecutive hours. Consequently, the north lecture room is used, on one day in each week, for four consecutive hours, and on the other four days, for two consecutive hours; the east lecture room is used, on three days in each week, for three consecutive hours, and on the other two days, for two consecutive hours; and the west lecture room is used, on one day in each week, for four consecutive hours, on another day for three consecutive hours, and on two other days for two consecutive hours.

Upon the whole, Austin Hall is already taxed very nearly to the utmost limit of its capacity; and if the School were likely to increase in size from this time on, steps ought to be speedily taken towards providing additional accommodation. It is not clear, however, that the School will not diminish in size in the immediate future; for, first, non-graduates are not to be admitted to the School hereafter unless they pass the admission examinations; and the admission examinations, which have heretofore embraced but one language, are hereafter to embrace two languages. Secondly, hereafter no student who fails in any year to pass an examination in at least three subjects, will be permitted to return to the School in the following year. This rule is already in force as to the first year that a student is in the School, and hereafter it is to apply to any subsequent year.

C. C. LANGDELL, *Dean.*

DECEMBER, 1892.

THE MEDICAL SCHOOL.

TO THE PRESIDENT OF THE UNIVERSITY:

SIR, — As Dean of the Medical Faculty I have the honor to submit the following report upon the Medical School for the academic year 1891–92: —

No very striking events have marked the history of the School during the past year. The time of the members of the Faculty has been very largely occupied in perfecting the details of the four years' course which, in accordance with the announcement made in the last report, has gone into effect with the beginning of the present academic year. The entering class of last year was by far the largest

that had ever joined the School, the new matriculants numbering 158. This circumstance was generally attributed to the fact that it was the last opportunity for entering the School under the three years system, and a corresponding diminution in numbers was anticipated for the following year with the inauguration of the four years' course. This anticipation has however not been realized, the entering class of the present year (153 new matriculants) being much larger than any previous class with the exception of the extraordinarily large one of the year before. It is of course too early to speak with positiveness on the subject, but the evidence thus far at hand seems to indicate that this last step in the raising of the standard of medical education is not likely to affect the income of the School so seriously as some of its best friends have feared.

Students entering the Medical School are either graduates of Colleges and Scientific Schools, holding degrees in letters or science and, as such, admitted to the School without examination, or they are men who have not had the advantage of a collegiate education and whose fitness to enter upon the study of medicine is tested by an admission examination. An enquiry into the way in which the numerical proportions of these two classes of students have varied during the last twenty years is not without interest.

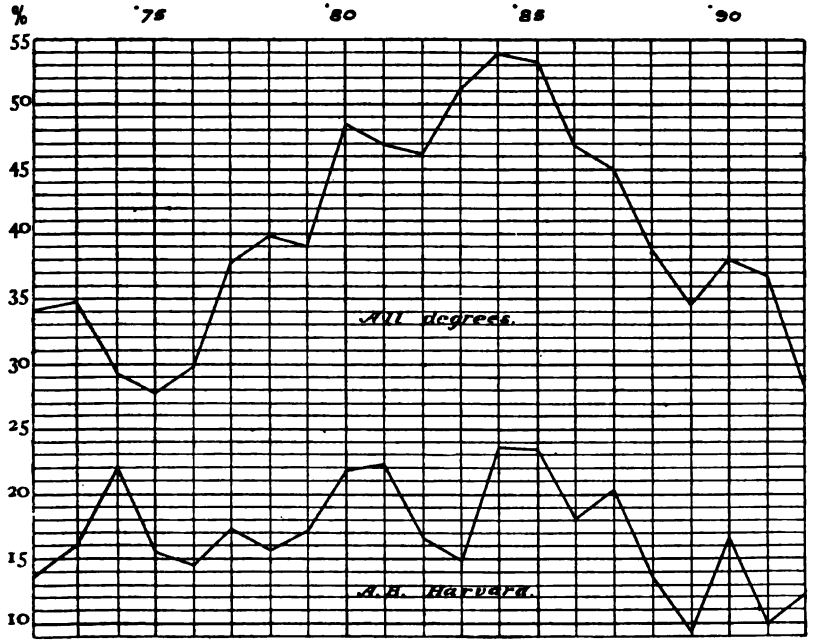
From the following table, which shows the total number of students and the percentage of graduates of Colleges and Scientific Schools in the entering classes of the School, it appears that the ratio of college bred men to the total number of the class increased largely, though irregularly, during the first portion of this period, reaching a maximum of 53.9 % in 1884.

Year.	Total No.	Percent of Graduates.	Year.	Total No.	Percent of Graduates.	Year.	Total No.	Percent of Graduates.
1872	44	34.1	1879	105	39.0	1886	94	46.8
1873	69	34.7	1880	64	48.4	1887	98	45.0
1874	109	29.3	1881	81	46.9	1888	103	38.8
1875	90	27.7	1882	78	46.1	1889	87	34.4
1876	111	29.7	1883	88	51.1	1890	134	38.0
1877	93	37.6	1884	102	53.9	1891	171	36.8
1878	103	39.8	1885	90	53.3	1892	174	28.2

Since that time there has been an equally marked diminution in the ratio, so that for the present year only 28.2 % of our first year students are college bred men, a ratio which is, with one exception, less than in any other year since 1872.

The following diagram constructed from the figures in the above table exhibits the variations in the percentage of graduates of colleges and scientific schools generally, and also in the percentage of holders of the Harvard A.B. degree.

Diagram showing percentage of graduates of Colleges and Scientific Schools, in entering classes of Harvard Medical School from 1872 to 1892.



The cause of this relative diminution in the number of what must be regarded as the most desirable class of our students is doubtless a complicated one, but among the influences that have contributed to this result it is fair to assume that the increasing demands of our colleges upon the time of the under-graduates, and a growing conviction of the importance of beginning professional studies at an earlier age than that at which most students obtain the degree of A.B., have played an important part. This view derives confirmation from the fact that there is a large and apparently an increasing number of students in every entering class who have received a certain amount of collegiate education, but have left their colleges without taking a degree.

The following table shows how the number of this class of students has varied from year to year since 1874: —

Year.	No.	Year.	No.	Year.	No.
1874	10	1881	12	1888	8
1875	16	1882	8	1889	9
1876	16	1883	8	1890	26
1877	14	1884	11	1891	28
1878	13	1885	11	1892	24
1879	11	1886	10		
1880	7	1887	11		

There are, of course, many reasons which induce students to leave college without taking a degree and it is very unsafe to draw general conclusions from the variations in the total number, but the fact that this class of students has increased in such a striking manner during the past three years, taken in connection with the recent great falling off in the number of college graduates in our entering classes, certainly suggests the possibility that there is a growing class of students who have reached the conviction that the degree of A.B. may be too dearly purchased if it involves so much delay in entering upon a chosen profession. If this is the case it may be hoped that the wants of this class of students may be to some extent supplied, as far as Harvard University is concerned, by the course in Anatomy, Physiology, and Physical Training, recently established in the Lawrence Scientific School, but it would perhaps be well for those who are responsible for our methods of university education to consider whether, in the effort to raise the standard of college education, the academic curriculum has not lost a good deal of its value as a preparation for a professional career, and whether it may not be desirable in the interests of a broad, liberal education, to shorten the period of academic training to meet the wants of the professional schools, and to provide by a greater development of the graduate department for the highest kind of liberal training in as many different directions as possible. The A.B degree would then become the mark not of a liberally educated man but of one who has taken the first step in the direction of liberal training, the second step being the acquirement either of a professional degree, or of that of A.M., Ph.D., or such other degree as may be adopted to indicate the completion of a course of liberal study in the graduate department.

An enquiry into the way in which the proportion of college bred men has varied in other Medical Schools may perhaps be expected to throw light upon the causes of the sudden changes observed at Harvard. The College of Physicians and Surgeons of New York is the only large school in the country, for which data are at hand

for making a comparison of this sort with our own institution. Unfortunately the figures obtained from the catalogues of this School lose something of their significance from the fact that the students are not classified, as at Harvard, according to years of study, but they are nevertheless presented as not without interest in the discussion of this question.

The following table shows the total number of students and percentage of those holding degrees in letters or science (A.B., B.A., A.M., B.S., S.B., S.D., Ph.D., and Ph.B.) in the successive sessions of the College of Physicians and Surgeons, New York, from 1872 to 1892: —

Year.	Total No.	Percent.	Year.	Total No.	Percent.
1872	359	16.7	1883	505	23.9
1873	387	16.5	1884	490	24.6
1874	452	17.9	1885	502	23.9
1875	411	21.4	1886	606	20.1
1876	439	22.7	1887	809	18.4
1877	413	20.8	1888	701	23.9
1878	485	22.8	1889	619	26.3
1879	513	21.2	1890	534	30.5
1880	555	19.6	1891	570	34.7
1881	547	21.9	1892	642	32.5
1882	543	21.5			

It will be seen by the table here given that between the years 1872 and 1887 the number of students having a collegiate education varied from 16.5 to 24.6 per cent. of the whole number of students, but that during the last four years the ratio has been much larger, rising in 1891 to 34.7 per cent. The fact that the ratio of college bred men has been rising in the New York School while it has been falling at Harvard might suggest the conclusion that this class of students finds superior attractions in the former institution. There are, however, circumstances connected with the recent history of the New York School, to which my attention has been kindly called by Dr. J. G. Curtis, and which serve to explain much of the recent rise in the percentage of college graduates. The year 1888 was the first year in which an entrance examination was required. This reduced the total number of matriculants from 809 to 701, but did not affect the college bred men; hence the percentage rose. 1890 was the first year in which the State of New York took charge of the entrance examination, applying it to all schools alike. The total matriculants again fell from 619 to 534, causing as before, a relative increase in

the college men. The increased percentage of the last two years is, however, associated with an increased and not a diminished number of students, and is therefore a source of gratification.

Whatever may be the explanation of the fluctuations in the proportion of students having a collegiate education in the Medical Schools of the country, the phenomenon, in Harvard University at least, is sufficiently striking to attract the attention of all who are interested in methods of university education.

The special work done in the Medical School, in addition to the regular instruction as set forth in Table IV., may be summarized as follows: —

Anatomy. — The collection of large models of bones to which allusion has been made in previous reports is now so far advanced as to call for a more comprehensive account. These models which are made of paper pulp by Mr. J. H. Emerton, under the direction of the Professor of Anatomy, are remarkable for their accuracy and for their extreme lightness. The collection embraces upwards of twenty models, representing all the principal bones of the body enlarged from three to six diameters. The latest addition is a model of the base of the skull and face enlarged six times and conveniently mounted for demonstration. The whole collection supplies to the Anatomical Department what are believed to be absolutely unrivalled facilities for teaching osteology in a large lecture room.

Histology and Embryology. — Professor Minot has completed his work on Human Embryology, an octavo volume of over 800 pages, with numerous illustrations.

Dr. E. S. Abbot has carried on a series of studies on the histology of the nervous system.

The demands upon the laboratory have grown very rapidly, owing to the increasing recognition of the importance of the microscope to the practitioner, the class room has been enlarged and the supply of apparatus increased.

Physiology. — Mr. R. E. Edes and Mr. C. A. Ewald have continued their investigations alluded to in the last report, and have published their results in the Journal of Physiology.

Chemistry. — Professor E. S. Wood has continued his investigations into the time required for the complete elimination of arsenic from the system and on the restoration of the blood corpuscles in dried blood stains. The result of this work will soon be published.

The study of the urine in cases of uraemia undertaken in coöperation with Dr. F. C. Shattuck, has also been continued.

Professor Hills has continued his study of chronic arsenical poisoning.

Pathology. — A great deal of work has been done in the pathological laboratory in the study of specimens, reports on autopsies, etc., the results of which are embodied in papers published in Journals and Transactions of Medical Societies, and are not directly credited to the laboratory.

Bacteriology. — The work in this department has been much interfered with by the sickness of those connected with it. Owing to Dr. Ernst's illness last winter, and to the slow recovery of his usual strength, he has been unable to do more than keep up the regular instruction required.

Early in the spring the laboratory suffered a severe loss in the death of Dr. J. A. Jeffries, whose work had been of the highest order during the last few years.

The prolonged illness of Dr. S. C. Martin, lasting now over a year, has made the completion of his extremely important and promising researches upon Vaccine Virus out of the question.

Dr. A. K. Stone has carried on his investigations of the organisms occurring in surgeons' silks, and together with Dr. Henry Jackson is conducting certain experimental work upon Diptheria.

Dr. Alexander Burr has made a long series of experiments on the cultivation of the fungus of Actinomycosis.

Children's Diseases. — The establishment of a Milk Laboratory in this city under the control of the Professor of Diseases of Children, is regarded as marking an important advance in Infant Feeding and Therapeutics. Food for children can here be prepared with all the precision that is attainable in putting up a physician's prescription at a drug store.

The whole number of students in attendance

During the year was	418
During the first term	399
During the second term	407

Of these 185 had literary or scientific degrees.

There were 75 applicants for the degree of Doctor of Medicine in the three-years' course, of whom 8 were rejected.

There were 27 applicants for the degree of Doctor of Medicine in the four-years' course, of whom one was rejected; 13 of these students received the degree *cum laude*, and 9 received the degree of Master of Arts together with that of Doctor of Medicine.

The fourth class was composed of 34 students.

The scholarships were awarded as follows: —

1st Barringer Scholarship,	J. E. Loveland . .	3d	Class.
2d " "	J. Selva	3d	"
Faculty "	J. B. Ogden . . .	3d	"
" "	C. B. Stevens . .	3d	"
" "	T. H. Carter . . .	2d	"
" "	H. L. Houghton .	2d	"
Cheever "	C. L. Mix	1st	"

The Faculty awarded two gratuities of $100 each to

P. F. Silva	3d Class.
A. H. Lindström	2d "

The usual statistics of the School will be found in the appended tables.

H. P. BOWDITCH, *Dean.*

COURSES OF INSTRUCTION, 1891–92.

FIRST CLASS.

Descriptive Anatomy. — Professor Dwight. Three exercises per week. 170 students.

Practical and Applied Anatomy. — Asst. Professor M. H. Richardson. Three exercises per week, November till May.

Practical Anatomy, Recitations, and Exercises in Dissection. — Drs. Mixter, Conant, Munro, and Bryant. Six exercises per week, November till May.

Laboratory Exercises in Histology. — Professor C. S. Minot, and Drs. Quincy and Greene. Two exercises per week, 1st half-year; three, 2d half-year.

Histology. — Professor C. S. Minot. Sixteen lectures.

Embryology. — Professor C. S. Minot. Eight lectures.

Systematic and Experimental Physiology. — Professor Bowditch. Four exercises per week. 183 students.

Laboratory Exercises in Experimental Physiology. — Dr. Cardwell. November till May.

Medical Chemistry. — Professor Wood. Two exercises per week, 2d half-year.

General and Analytical Chemistry. — Professor Hills. Two exercises per week, with ten additional exercises. 160 students.

Practical Exercises in the Laboratory for General Chemistry. — Professor Hills, and Drs. Harrington and Worcester. Five exercises per week.

Hygiene. — Dr. Harrington. Eighteen lectures and demonstrations.

SECOND CLASS.

Topographical and Advanced Anatomy. — Professor DWIGHT. One exercise per week. 131 students.

Practical and Applied Anatomy. — Asst. Professor M. H. RICHARDSON. Three exercises per week, November till May.

Practical Anatomy, with Exercises in Dissection. — Drs. MIXTER, CONANT, MUNRO, and BRYANT. Five exercises per week, till May.

Medical and Toxicological Chemistry. — Professor WOOD. Two exercises per week, 1st half-year. 133 students.

Practical Exercises in Laboratory for Medical Chemistry. — Professor WOOD and Dr. WENTWORTH. Five exercises per week.

General Pathology and Pathological Anatomy. — Professor FITZ. Two exercises per week. 129 students.

Special Pathological Anatomy, with Demonstrations. — Professor FITZ. Two exercises per week.

Laboratory Exercises in Pathological Histology. — Drs. WHITNEY and MALLORY. Two exercises per week.

Practical Instruction in Performing Autopsies. — Professor FITZ and Dr. MALLORY. Throughout the year.

Clinical Medicine, including one weekly conference. — Professors SHATTUCK and MASON, and Drs. GARLAND and VICKERY. Seven exercises per week.

Practical Instruction in Auscultation and Percussion. — Drs. GARLAND, GANNETT, and WITHINGTON. Six exercises per week, 1st half-year.

Recitations in Theory and Practice. — Dr. CUTLER. Two exercises per week.

Laryngoscopy. — Professor KNIGHT and Dr. HOOPER. Six exercises per week, 1st half-year.

The Application of Bandages and Apparatus. — Dr. BURRELL. Six exercises per week, October till January.

Clinical Surgery. — Professor WARREN. Two exercises per week.

Clinical Surgery. — Professor PORTER. Three exercises per week.

Clinical Surgery. Practical Exercises. — Drs. ELLIOT, HARRINGTON, MONKS, BURRELL, and WATSON. Throughout the year.

Therapeutics. — Dr. HARRINGTON. Two exercises per week. 139 students.

Paediatrics. — Asst. Professor ROTCH. Two exercises per week for two months.

THIRD CLASS.

Theory and Practice of Obstetrics. — Professor W. L. RICHARDSON. Two exercises per week. 79 students.

Recitations in the Theory and Practice of Obstetrics. — Dr. C. M. GREEN. One exercise per week.

Operative Obstetrics. — Dr. C. M. GREEN. Twelve practical exercises.

Practical Instruction in Clinical Obstetrics. — Drs. C. M. GREEN, REYNOLDS, and TOWNSEND. Throughout the year.

Obstetrical Conference. — Professor W. L. Richardson, and Drs. C. M. Green, Reynolds, and Townsend. One exercise per week after December.

Theory and Practice of Physic. — Professor Fitz. Two exercises per week, 2d half-year. 77 students.

Clinical Medicine, including one weekly conference. — Professors Shattuck and Mason, and Drs. Garland and Vickery. Seven exercises per week. 77 students.

Surgery and Surgical Pathology. — Professor Warren. Two exercises per week. 72 students.

Clinical Surgery. — Professor Cheever, and Drs. Gay, Bolles, Bradford, Post, and Gavin. Three exercises per week.

Clinical Surgery. — Professors Porter and Warren, Asst. Professor M. H. Richardson, and Drs. Beach, Homans, and Cabot. One exercise per week.

Clinical Surgery (conference). — Professor Porter. One exercise per week. 79 students.

Surgical Anatomy and Operative Surgery. — Professor Porter. Two exercises per week in March and April.

Operative Surgery. — Professor Porter, Asst. Professor M. H. Richardson, and Drs. Mixter, Conant, Munro, Monks, Elliot, Harrington, Burrell, Watson, and Scudder. Fifteen practical exercises.

Surgical Landmarks. — Dr. Monks. Ten Exercises.

Diseases of the Eye. — Professor Wadsworth. Two exercises per week.

Diseases of the Skin. — Professor White. One exercise per week.

Clinical Dermatology. — Professor White. One exercise per week.

Gynaecology. — Professor Baker. One exercise per week. 43 students.

Clinical Gynaecology. — Professor Baker. Two exercises per week, 2d half-year.

Clinical Gynaecology. — Dr. Davenport. Two exercises per week, 1st half-year.

Practical Diagnosis and Treatment of Syphilis. — Dr. Post. One exercise per week till February.

Practical Diagnosis and Treatment of Diseases of the Ear. — Professors Blake and J. O. Green. One exercise per week, January till April.

Anatomy, Physiology, and Diseases of the Ear. — Professor Blake. Two exercises per week for three months.

Practical Diagnosis and Treatment of Diseases of Children. — Asst. Professor Rotch. Two exercises per week. 26 students.

Practical Diagnosis and Treatment of Diseases of the Nervous System. — Dr. Putnam. One exercise per week.

Mental Diseases. — Dr. Fisher. Two exercises per week, 2d half-year.

Legal Medicine, with Demonstrations. — Asst. Professor Draper. Two exercises per week, 1st half-year.

FOURTH CLASS.

Clinical Medicine. — Professor FITZ. One exercise per week for one month.

Clinical Medicine. — Dr. GARLAND. One exercise per week for six months.

Clinical Medicine. — Dr. GANNETT. One exercise per week for seven months.

Clinical Medicine. — Dr. VICKERY. One exercise per week for three months.

Clinical Surgery. — Dr. GAY. Two exercises per week for two months.

Clinical Surgery. — Dr. BURRELL. Two exercises per week for three months.

Operative Surgery. — Professor PORTER, Asst. Professor M. H. RICHARDSON, and Drs. MIXTER and MONKS. Practical Exercises. 8 students.

Orthopedic Surgery. — Dr. BRADFORD. Two exercises per week for two months.

Clinical Obstetrics. — Professor W. L. RICHARDSON and Dr. C. M. GREEN. Two exercises per week for five months. 17 students.

Operative Obstetrics. — Professor W. L. RICHARDSON and Dr. C. M. GREEN. Practical exercises. 21 students.

Ophthalmoscopy. — Professor WADSWORTH. Two exercises per week. 7 students.

Dermatology. — Professor WHITE. Two exercises per week. 13 students.

Clinical Gynaecology. — Professor BAKER and Drs. DAVENPORT, STRONG, and SWIFT. Two exercises per week. 24 students.

Operative Gynaecology. — Professor BAKER and Drs. DAVENPORT, STRONG, and SWIFT. Ten exercises.

Diseases of Children. — Asst. Professor ROTCH. Two exercises per week for three months. 33 students.

Diseases of the Nervous System. — Drs. WALTON and KNAPP. Two exercises per week for four months.

Mental Diseases. — Dr. FISHER. Two exercises per week for four months.

Mental Diseases. — Dr. COWLES. One exercise per week for three months.

Laryngology. — Professor KNIGHT. Three exercises per week for three months. 2 students.

Otology. — Professors BLAKE and J. O. GREEN. Three exercises per week for eight months. 3 students.

Legal Medicine. — Asst. Professor DRAPER. Two exercises per week, 1st half-year. 9 students.

Legal Medicine. — Dr. HARRIS. Demonstrations.

Syphilis. — Dr. GREENOUGH. Two lectures a week for four months.

Ovarian Tumors. — Dr. HOMANS. Six lectures; clinical exercises.

Hygiene. — Dr. DURGIN. Sixteen lectures. 5 students.

Genito-urinary Surgery. — Drs. CABOT and WATSON. One exercise per week for seven months.

Bacteriology. — Dr. ERNST. One exercise per week for four months. 1 student.

Cookery. — BOSTON COOKING SCHOOL. Two exercises per week for one month.

TABLE I.—JUNE EXAMINATIONS.

		First Class and Second Class.																									
		Anatomy.	%	Physiology.	%	General Chemistry.	%	Medical Chemistry.	%	Materia Medica.	%	Path. Anatomy.	%	Adv. Anatomy.	%	Therapeutics.	%	Third Class. Theory and Practice.	%	Clinical Medicine.	%	Surgery.	%	Clinical Surgery.	%	Therapeutics.	%	Obstetrics.	%
1888	Passed	53		67		46		52		53		57		64				53		64		58		61		58		60	
	Rejected	7	11	10	13	9	16	9	14	15	22	4	6	3	4			7	11	2	3	5	8	0	0	5	8	6	9
	Total	60		77		55		61		68		61		67				60		66		63		61		63		66	
1889	Passed	67		65		55		59		61		58		53		61		59		61		61		62		53		58	
	Rejected	6	8	13	16	9	14	9	13	17	21	5	8	8	13	18	23	12	18	6	9	6	9	4	6	11	17	12	17
	Total	73		78		64		68		78		63		61		79		71		67		67		66		64		70	
1890	Passed	49		68		51		58		65		82		46		77		77		77		75		72				73	
	Rejected	28	36	9	11	11	17	7	10	12	15	13	18	26	36	11	12	7	8	7	8	5	6	0	0			11	13
	Total	77		77		62		65		77		95		72		88		84		84		80		72				84	
1891	Passed	94		87		76		66		86		56		51		65		73		70		75		62				72	
	Rejected	31	24	28	24	22	22	15	18	33	27	7	11	19	27	10	13	7	8	5	6	6	7	1	1			10	12
	Total	125		115		98		81		119		63		70		75		80		75		81		63				82	
1892	Passed	107		102		79		108		14		95		116		78		72		65		64		74				64	
	Rejected	39	21	38	27	31	28	18	14	1	7	12	11	3	3	23	23	2	3	4	6	3	4	0	0			5	7
	Total	136		140		110		126		15		107		119		101		74		69		67		74				69	

		Third Class.—Electives.															
		Diseases of Child'n.	%	Dermatology.	%	Gynæcology.	%	Nervous Diseases.	%	Legal Medicine.	%	Mental Disease.	%	Ophthalmology.	%	Otology.	%
1889	Passed	39		5		20		1		1		1		1		1	
	Rejected	2	5	0	0	1	5	0	0	0	0	0	0	0	0	0	0
	Total	41		5		21		1		1		1		1		1	
1890	Passed	69				3		1		1				5		2	
	Rejected	3	4			0	0	0	0	0	0			1	16	0	0
	Total	72				3		1		1				6		2	

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TABLE II. — SHOWING NUMBER OF TERMS SPENT AT THE SCHOOL BY GRADUATES.

	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.	1892.
Spent six terms .	67 88%	57 96%	63 89%	72 91%	83 85%	77 88%	51 93%	58 88%	62 94%	90 97%
Spent five terms .	4 5%	0	3 4%	3 4%	4 4%	4 4%	2 3%	2 3%	1 1½%	1 1%
Spent four terms .	4 5%	2 3%	4 5%	4 5%	1 1%	3 3%	2 3%	6 9%	1 1½%	1 1%
Spent three terms .	1 1%	0	0	0	0	0	0	0	0	0
Spent two terms .	0	0	1 1%	0	1 1%	3 3%	1 1%	0	2 3%	1 1%
Total graduated .	76[1]	59[2]	73[3]	79[4]	98[5]	87[6]	56[7]	66[8]	66[9]	93[10]

[1] Includes six students of the fourth class.
[2] Includes nine students of the fourth class.
[3] Includes three students of the fourth class.
[4] Includes nine students of the fourth class.
[5] Includes eleven students of the fourth class.
[6] Includes eleven students of the fourth class.
[7] Includes seven students of the fourth class.
[8] Includes thirteen students of the fourth class.
[9] Includes seventeen students of the fourth class.
[10] Includes twenty-six students of the fourth class.

TABLE III. — STATISTICS OF EXAMINATIONS.

EXAMINATIONS FOR ADMISSION.

			Physics.	Latin.	English.	Elective.	Rejected.
1892.	June	Offered . .	50	45	52	51	2
		Conditioned	6	7	0	7	
	Sept.	Offered . .	65	49	65	57	7
		Conditioned	18	12	0	8	

TABLE IV.

	Summer Courses.				Graduate Courses.			
	1889.	1890.	1891.	1892.	1888–89.	1889–90.	1890–91.	1891–92.
Courses taken . . .	54	60	77	84	27	64	145	52
Students	33	45	65	67	22	32	43	33
Receipts	$1250	$1425	$1817	$1865	$617	$1295	$2137	$1240

THE DENTAL SCHOOL.

To the President of the University:

Sir, — As Dean of the Dental Faculty I beg to submit the following report upon the Dental Department for the year 1891–92: —

The number of students has been fifty-one, divided as follows: for the first, or Freshman, year, twenty-one; for the second year, comprising both second and third year students, under the old regulation permitting one year's study with a dentist or physician, there were twenty-nine, which may be sub-divided into second year students thirteen, and third year students sixteen, according as they were to complete their time in the School in one or two years. The number of graduates was fourteen.

The studies of the first year, with the exception of Elementary Practical Operative Dentistry, are wholly in the Medical School, under the teachers of that School, Professors Dwight and Bowditch and Associate Professor Hills. The studies with them are the same as those of the Medical classes, and they pass the same final examinations at the end of the year. These studies are General Anatomy, including dissection, Physiology, and General Descriptive Chemistry, with abundant laboratory work. In order to be advanced to the second year studies, every student must have passed two out of these three studies. Failing to do this, he is relegated to the Medical studies. Drs. Monks, Worcester, and Walton, also of the corps of Medical School instructors, give instruction of a very interesting and valuable character to students during their second and third years, in Surgical Pathology, Dental Chemistry, and Neurology respectively. The professors and instructors of the Dental School also give lectures on the subjects of their respective branches, Operative and Mechanical Dentistry, Dental Pathology, Orthodontia, Materia Medica and Therapeutics, Oral Anatomy and Physiology, and Bacteriology. Dentistry proper, being in its aims and results mainly a practical study requiring manipulative skill, to acquire which demands much time and great practice, necessarily calls for the largest part of the students' time. The Dental lectures occupy a little more than one hour of each week-day, and the rest of the time is devoted to practical work in the Mechanical and Operative Infirmaries. These Infirmaries, while affording the students ample opportunities for practice, are really Hospitals where the poor can obtain relief from some of the most terribly acute suffering endured by man, can have their teeth cared for, artificial teeth inserted where needed, irregular

and deformed dentures straightened, artificial vela inserted for the closure of cleft palates, and fractured jaws restored to usefulness. These functions of our Infirmaries are seemingly not understood; our Infirmaries are regarded as places for the relief of pains from decaying teeth. This is of course a large part of their functions, but the other functions ought not to be overlooked. Patients are never wanting in either department, and our students have ample opportunities for practice in every kind of operation, many cases appearing at the Infirmaries which are rarely seen in private practice. The treatment of cleft palates and of fractured jaws is getting to be recognized among surgeons as specialties of dentistry, and, therefore, many such cases are sent to us from private medical practitioners, and even from the hospitals.

Clinical instruction of a very valuable and interesting kind has been given to the students of the Operative Department by Drs. D. M. Clapp, William P. Cooke, W. H. Potter, and Charles H. Taft. In this department, besides the demonstrator, who gives all his time five afternoons of each week, there are five clinical instructors, each of whom devotes one afternoon in every week to the class. These have all given faithful and efficient instruction. They have all accepted appointments for another year's service, except Dr. C. H. Taft, whose acceptance of an appointment in an institution in Chicago obliged him to decline.

This was the last year under the old rule, which allowed one year to be spent in an office out of the three years' study required for the degree. A three years' attendance at the School is hereafter compulsory. This change necessitated the appointment of additional instructors for the ensuing year (now current) inasmuch as the classes heretofore united as second and third year students can be separated and receive separate instruction.

The great increase in the number of students has made necessary the purchase of several new operating chairs and their tables, still further crowding an already over-crowded room, and emphasizing the need, already spoken of in previous reports, of more room and more light. If, in coming years, the number of students increase as in years past, it will be impossible in our present quarters to give them all the opportunities to which they are entitled. What is true of the operative room is true to even a greater degree in the mechanical room. It is already impracticable to obtain proper light for all the workers, and with any increase in numbers the inconveniences will become extreme.

At the close of the year, after three years' of acceptable service as demonstrator of Operative Dentistry, Dr. Clifford declined

reappointment and Dr. Joseph T. Paul was appointed to the position for the next year. The assistant demonstrators in this department, Drs. Gay, Perkins, and Brouillet, rendered excellent service in the extracting and surgical room, relieved the demonstrator from some of his many duties, and enabled him to give greatly needed attention to others.

The clinical lecturers, Drs. Clapp and Potter, have accepted appointments for another year, while Dr. William P. Cooke has been appointed instructor in crown and bridge work. For the Operative Department, a gift of a set of instruments for oral surgery of the value of seventy-five dollars has been received from Dr. T. M. Dillingham and Mr. A. C. Barron, also a Harvard Surgical Chair from Mr. C. B. Fillebrown.

To the Mechanical Department there were appointed early in the year five assistant demonstrators without salaries, all of whom have given valuable aid; they have assisted the demonstrator in the more rudimentary work, and enabled him to give his time and efforts to the higher instruction and to the care of the patients. Dr. Moriarty, the demonstrator of this department, has been exceptionally faithful and earnest in his work, and, by systemizing it, has added greatly to its efficiency. He has been appointed for another year. Dr. Brackett reports that, in addition to his regular lectures, he has brought before his class a number of patients whose cases illustrated particular forms of disease of which he was speaking. Dr. Stanton has given twenty-six lectures on Oral Anatomy and Physiology, and eight on Bacteriology. Dr. Smith gave a lecture or clinic, or both, on every Thursday of the year, excluding, of course, vacations. Some twenty-five cases of deformed teeth and mouth were treated by the students with excellent results. His subject being a very important one in practice, the class have taken a great interest in the course, and have derived great benefit from it.

The amount of didactic instruction during the year has been as follows: —

Professor Brackett. Dental Pathology. 35 lectures.
" Fillebrown. Operative Dentistry. 32 lectures.
" Chandler. Mechanical Dentistry. 30 lectures.
Asst. Professor Briggs. Materia Medica and Therapeutics. 25 lectures.
Instructor Stanton. Oral Anatomy and Physiology, and Bacteriology. 34 lectures.
" Smith. Orthodontia. 36 lectures.
" Monks. Surgical Pathology. 10 lectures.
" Walton. Neurology. 6 lectures.
" Worcester. Dental Chemistry. 10 lectures.
" Hopkins. Crown and Bridge Work. 16 lectures.

Many of these lectures have been accompanied by clinics, which added greatly to their interest and value.

By vote of the Faculty, Dr. Waldo E. Boardman was appointed Curator of our Museum, which had hitherto been left mostly to itself, specimens being simply placed in the cases without care or order. A committee was appointed to assist him. He at once began the work of arrangement, devoting to it his leisure hours and even his vacations, until a revolution had been effected, and we have now a small, but well arranged, Museum, each article being labelled, numbered, and put in its proper place. It has also been catalogued, and the Catalogue is now in the hands of the printer. When completed, it is to be distributed to all the Alumni whose addresses are known. It is hoped in this way to excite an interest in the matter among our graduates, calling their attention to the existence of the Museum and to the desirability of increasing it. Many a model, mould, or abnormal tooth is now thrown away which, if preserved and placed in a systematic collection, would be of great interest. It is to save this now wasted material that we desire to excite an interest in our collection. Already, during the past year, over four hundred new specimens, some of which have great value, have been given by Alumni and friends in our immediate vicinity. Especially worthy of mention are thirty-eight from Dana W. Fellows, M.D., of Portland, Me., and two hundred from William P. Cooke, D.M.D., of Boston, illustrating new formations of secondary dentine in the dental pulp, and sixty-three lantern slides from Dr. Cooke illustrating the same subject, and prepared by him from the same specimens. This work of Dr. Boardman's is deserving of the highest approbation. Without his zeal and faithful endeavors it would not have been accomplished.

In previous reports I have enlarged upon our need of a new building which would give us more room and more light and a more agreeable neighborhood. The same reasoning which induced the Medical Faculty to abandon the building we now occupy for its new one on Boylston Street applies to our case. We owe it to the courtesy of the Medical Faculty that we are permitted to occupy our present quarters, — a favor for which we are very grateful; but our gratitude does not prevent us from wishing, hoping, and striving for better accommodations. An enterprise is now on foot, managed mainly by a committee of the Harvard Dental School Association, to obtain means for the erection of a suitable building in a suitable neighborhood. It is sincerely hoped that by the time this report is published this object will have been accomplished.

THOMAS H. CHANDLER, *Dean.*

THE BUSSEY INSTITUTION.

To the President of the University:

Sir, — I respectfully submit the following report upon the Bussey Institution for the year 1891–92: —

In addition to the usual stated courses of instruction in Agriculture, Horticulture, Botany, and Agricultural Chemistry, as given by Messrs. Motley, Watson, Kidder, and Storer, the students were met twice a week throughout the academic year by Mr. Edmund Hersey, superintendent of the Bussey Farm, for familiar talk about the tools, methods and appliances of Agriculture. Professor Storer also had each week an exercise in the School Library, when written questions were given to the students to be answered by them in writing after reference to books.

Fifteen students were in attendance, as against twelve in the previous year, being the largest number of students registered in any one year since 1871–72.

The degree of Bachelor of Agricultural Science was conferred upon one student at commencement.

It is to be feared that this gain, as to the number of students, can hardly be maintained, in view of the fact that in the course of the year the Legislature of Massachusetts set apart a special "labor fund" to be used for the support of needy students at the State Agricultural School, at Amherst.

Although the policy of the Bussey Institution respecting beneficiary students has — in accordance with the wish of its founder — always been more liberal than that of any other department of the University, it is manifest that the funds of the Bussey Trust, available for helping students, are insignificant in comparison with the amounts raised for this purpose by the Commonwealth, by way of taxation, for the use of another school. It is a curious fact withal that, generally speaking, the farming population seems to regard "state aid" not in the least as a matter of almsgiving or almstaking, but as if it were a bounty of nature to be accepted as a matter of course, as one enjoys fresh air or spring water.

F. H. STORER, *Dean.*

THE VETERINARY SCHOOL.

To the President of the University:

Sir, — I beg to submit herewith the tenth annual report of the School of Veterinary Medicine.

Of the six members of the third class, all presented themselves for the final examinations; four were successful. There were six graduates, four from the third class, and two others who, for various reasons, had not previously qualified.

There are forty students in the School, divided as follows: three in the third class, eleven in the second, seventeen in the first, and nine in the special.

There were again eighteen applicants for the admission examinations, of whom two were unsuccessful. A slight analysis of the figures shows that the very encouraging growth of last year has been fully maintained, and that, although the number of those actually taking the entrance examination is no greater than last year, the number of those entering the special class has been more than doubled. The special class, as it is now constituted, is nothing more or less than a feeder to the School.

While the third class, the smallest one that we have had, has only three members, the total number of students, forty, is an increase of nine over last year, and seventeen over 1889–90.

At about the mid-year, namely in January, the resignation of Dr. Becket from the Instructorship in Operative Veterinary Surgery, that of Dr. Lee from the Instructorship in Anatomy, and that of Dr. Soule from the post of Resident Surgeon, compelled us to make a series of important changes in the teaching staff. Dr. Frederick H. Osgood, of Springfield, was appointed Professor of Veterinary Surgery, Dr. Henry F. Leonard, Instructor in Anatomy, and Drs. L. H. Howard and W. L. LaBaw, Clinical Lecturers.

These changes came unexpectedly, and compelled an almost entire reorganization of the Veterinary teaching staff in the middle of the year's work, and with less than thirty days notice; but they gave an opportunity to strengthen the School in the manner indicated two years before by Dr. Richard M. Hodges, then Chairman of the Overseers' Committee on the Veterinary Department.

Dr. Osgood, an alumnus of the Massachusetts Agricultural College, was graduated at Edinburgh, a Member of the Royal College of Veterinary Surgeons, in April, 1881. He at once began the practice of his profession in Springfield, Mass., and, during the eleven years

of his experience there, won the respect and confidence of the entire community.

Dr. Henry F. Leonard was graduated a Doctor of Medicine at the New York College of Physicians and Surgeons in 1881, and he has practiced his profession in Boston since that year. Becoming interested in Comparative Medicine, he took a course of instruction in our School, and was graduated a Doctor of Veterinary Medicine in June, 1891. He was appointed a Clinical Lecturer at the Veterinary School in September, 1891, and in January, Instructor in Anatomy, for which position he is peculiarly well qualified.

Dr. Howard was graduated a Doctor of Veterinary Surgery at the American Veterinary College, in New York, in 1881, and since then he has practiced his profession in Boston. He is President of the Massachusetts Veterinary Medical Association.

Dr. LaBaw was graduated a Doctor of Veterinary Surgery at the American Veterinary College in 1890. He held the position of "House Surgeon" at the New York Hospital for a year, after which he practiced his profession in Worcester: so that the Veterinary Staff of the School, as now composed, embraces men from various colleges, who have had a wide range of observation, and have all been in successful practice for themselves.

The Veterinary Hospital. — From its organization, in 1882, to the time at which the changes above described took place in the teaching staff, the School and Hospital had been, with the exception of some four months in 1886–87, under the same general management; the detail of the hospital work being carried out, as the business grew, by a Superintendent and a Resident Surgeon. In January, these positions were filled by Drs. Becket and Soule, respectively, and were, at that time, resigned by them. With the acceptance of these resignations, the two offices were abolished. It had been apparent for some time that, with the increase in work in each of the divisions, the interests of the whole department could be better served by separating the management of the School and the Hospital, and placing that of the Hospital under the entire control of some one, well-tried man, who could be closer to the detail of the cases than was possible when both divisions were superintended by one person. With the advent of Professor Osgood the long-looked for opportunity arrived. He was made Surgeon in Charge of the Hospital, and the entire responsibility for that Institution was placed on him. Dr. LeBaw was, at the same time, appointed Assistant Surgeon at the Hospital.

The responsibility of the Dean of the School for the management of the Hospital ended upon the first of February; up to that time the

outcome of the work, as compared with the same period of the year before, showed an increase in the gross earnings as follows: Hospital, $429.14; Forge, $235.85. During the same period there was an increase in the gross expenses amounting to $284.32, which leaves a net increase of earnings amounting to $380.67 for the six months.

Finances. — The total work of the year in the School and the Hospital was done at a considerable loss, a deficit of $2639.71 being shown by the Treasurer's statement. This would be a cause of uneasiness were it not for the fact that the whole deficit is accounted for by changes in the salary list, — changes undertaken with a full understanding of their present cost, but with a firm conviction that they were for the best interests of the Department.

The total gross earnings for the year were $22,997.74, as against $21,997.74 for 1890–91; of this total amount the School earned $3431, which is $1004 more than for the previous year.

As foreshadowed in my last report, the United States Veterinary Medical Association, the only national representative body of the profession, have at their annual meeting, held this year in Boston, taken a definite stand for the elevation of the profession in America by adopting the following amendment to its Constitution.

Article 1. "Any applicant for membership shall submit his name upon one of the Association blanks, duly vouched for by one or more members of the Association, or by the Resident State Secretary of his respective state. He shall be a graduate of a regularly organized and recognized Veterinary School, which shall have a curriculum of at least three years, of six months each, specially devoted to the study of Veterinary Science, and whose corps of instructors shall contain at least four Veterinarians. If of a Medical School, a similar curriculum as to time shall prevail.

Article 2. "This alteration is to go into effect after the annual meeting of 1892. It shall not be retroactive, nor apply to applicants who were college matriculates prior to its passage."

Thus the action of Harvard University, which established the first "three year" school upon this continent, has received the hearty, and, as the vote accepting the amendment was unanimous, unqualified endorsement of the representative Veterinarians of the Country. This is a matter of no small encouragement to our School, and should give us renewed courage to go on with our endeavors to put American Veterinary Science upon a footing equal, at any rate, to Continental Europe. To one who has known intimately the difficulties attending this step on the part of the Association, it gives evidence of remarkable earnestness and energy under wise guidance.

It has often been observed that in English-speaking nations the science of Veterinary Medicine has made slow progress. It was not until within a few years that the Royal College of Veterinary Surgeons found itself able to institute even a three years course of study in the various teaching schools of Great Britain, notwithstanding the fact that its near neighbors upon the Continent maintained one of four years.

This condition of things seems at last to have changed; for, during the past summer, the Royal College have declared that "on and after the 7th April, 1895," among other requirements, all candidates for the diploma must give evidence of having attended a full course of four years.

While with us, who have only just succeeded in getting full recognition for a three years course, it seems impossible even to talk of a four years' course, there is still evidence of a desire, on the part of a few veterinarians, and veterinary students, for something higher and better than any course of study that is now obtainable in the United States. From time to time, some of these ambitious students go to Europe in search of a prolonged training.

Harvard University, from her abundant resources, can easily supply this demand; and now, that she has accomplished the first step, she should begin to take the second by establishing, in the near future, a Course for Graduates with an accompanying higher degree. This is the way, and the only way, in which to begin the creation of a body of students of Comparative Medicine capable of doing original work in a large and increasingly important field that, with us, is almost untilled.

While very much has been accomplished in the way of perfecting our course of study by the addition of new subjects, and the improvement of the courses already instituted, there are still alterations and additions to be made; and I shall recommend that, during the coming year, there be instituted in the School, courses in pathology, helminthology, and meat inspection. The course in pathology should be distinct from that now given in the Medical School, and should consist of instruction in general pathology particularly directed to the needs of the veterinarian with demonstrations upon diseased animal organs and tissues; that in helminthology should be devoted to the life habits of the various worms that attack animals, their methods of access, and the diseased conditions to which they give rise in the hosts. The course in meat inspection should consist of practical exercises at the abbatoir; the study of the appearances of healthy and diseased meat, and, incidentally, of the explanations

of these appearances. Since a portion of the work of the State Board of Cattle Commissioners has been placed in the hands of officers of the School, numerous opportunities can be given our students to see large numbers of animals of all kinds examined with a view of ascertaining, while they are alive, whether or not milk or meat from them will be suitable for human food; or whether they are affected by any disease that is communicable to mankind, or to other animals.

The School has now been ten years in existence. It began with gifts for immediate use amounting to $2500, and has never received any more. It began with ten students and now has forty, notwithstanding the fact that it has constantly labored under the disadvantage of fighting the battle for a long curriculum against a well established short one. It has the largest corps of instructors, and the widest range of instruction of any English-speaking Veterinary College. It has built up a successful Hospital practice which supplies its students with the necessary clinical opportunities. Finally, it has contracted a debt of $19,153.65, about $16,000 of which represents the cost of an addition made for School purposes to the original Hospital building. This origininal building was erected by private owners, and is only hired from year to year.

CHARLES P. LYMAN, *Dean.*

THE LIBRARY.

To the President of the University:

Sir, — Three numbers of the *Bulletin of Harvard University* have been issued under the immediate charge of Mr. Lane during the past year. Of the *Bibliographical Contributions*, also issued separately by the Library, four have been published, namely: No. 43, *A Classified List of Books Relating to British Municipal History*, by Professor Charles Gross; No. 44, *Eighth List of Publications of Harvard University and its Officers, with the Chief Publications on the University, 1890–91*, by W. H. Tillinghast, Assistant Librarian; No. 45, *Notes on Special Collections in American Libraries*, by William C. Lane, Assistant Librarian, and Charles K. Bolton, of the Catalogue Department; No. 46, *The Class of 1828, with a List of Publications of its Members*, prepared by the Librarian, from data preserved by the late Dr. Henry I. Bowditch and preceding class secretaries.

The accessions to the University Library for the year, and the present extent of the various departments, are as follows: —

Principal Departments.	Volumes added.	Present extent in	
		Volumes.	Pamphlets.
Gore Hall (College Library) .	9,726	301,252	287,556
Law School	1,705	28,157	3,544
Scientific School	617	3,355	800
Divinity School	788	24,027	4,500
Medical School	33	2,033	. . .
Museum of Zoölogy	584	22,757	253
Astronomical Observatory . .	187	7,176	8,569
Botanic Garden	85	6,260	3,425
Bussey Institution	25	3,225	. . .
Peabody Museum	35	1,243	1,352
Totals	13,785	399,485	309,999

If to this total of 399,485 volumes be added the 8504 volumes of the permanent collections in the laboratories and class rooms, (see below) we have a grand total of 407,989 volumes for the University Library.

The Whitney Library of Geology, a component part of the collection in the Museum of Zoölogy, is only in part included in the count of the Museum Library; while on the other hand no deduction has been made in the general library for volumes parted with on exchange account.

The Medical School depends upon the Collections of the Boston Medical Library Association, kindly thrown open to its use.

Of the accessions to the Gore Hall Collections there were added by gift 3215 volumes and 9,459 pamphlets; and the accessions also include 694 volumes of bound serials (received in parts), and 879 volumes made by binding pamphlets.

The accessions of recent years to the University Library (excluding the laboratory and class-room libraries) have been as follows: —

In 1879	10,389 vols.	In 1886	9,191 vols.
" 1880	7,247 "	" 1887	11,924 "
" 1881	9,804 "	" 1888	16,468 "
" 1882	9,192 "	" 1889	12,253 "
" 1883	9,818 "	" 1890	16,051 "
" 1884	12,360 "	" 1891	13,276 "
" 1885	14,558 "	" 1892	13,785 "

The present extent of the laboratory and class-room libraries is as follows: —

	Permanent.	On Deposit.	Totals.
Laboratories.			
1. Chemical	472	113	585
2. Zoölogical	170	. .	170
3. Geological	29	. .	29
4. Botanical	579	. .	579
5. Physical	. .	331	331
6. Physical Geography	287	143	430
7. Mineralogical	102	148	250
Class-Rooms.			
1. Classical	2471	138	2609
2. History	832	1	833
3. United States History	702	. .	702
4. Political Economy	640	. .	640
5. Mathematics	193	136	329
6. French	577	. .	577
7. English	34	. .	34
8. Sanskrit	22	. .	22
9. German	318	. .	318
10. Social Questions	426	. .	426
11. Music	62	. .	62
12. Philosophy	229	. .	229
13. Semitic	359	. .	359
Totals	8,504	1,010	9,514

An assistant is sent from the Central Library every week to examine the shelves of these libraries by the shelf-lists, and the titles of missing books are reported at once to the officer of instruction in immediate charge of the library where such loss or misplacement has been discovered. Temporary loans of books from Gore Hall are made to these libraries to facilitate the instruction of the several departments. In 1891–92 four of these libraries were open evenings for use when Gore Hall was closed.

The following table shows the use of books at Gore Hall in 1891–92 as compared with previous years: —

	1885–86.	1886–87.	1887–88.	1888–89.	1889–90.	1890–91.	1891–92.
1. Books lent out . .	60,195	62,861	65,639	68,892	74,906	70,036	71,434
2. Used in the building	8,816	12,041	15,267	14,299	17,203	15,861	19,648
3. Overnight use of reserved books .	18,505	20,052	20,360	21,802	24,989	21,706	20,469
Total (excluding No. 3, which is incl. in No. 1)	69,011	74,902	80,906	84,191	92,109	85,897	91,082
No. of books reserved	5,840	6,280	6,549	5,848	6,215	6,253	6,397

The extent of the number of books reserved — of whose hall-use no record is kept — has a tendency to decrease the number of volumes used in the building, of whose use record is made. The establishment of class-room libraries, is inducing a diminution of the figures against the class marked 3 in the above table. It is the observation, however, of those in charge of the reference service, of which no statistics are kept, that it is constantly increasing, year by year, and that the increase for last year was very great.

In the Delivery Room are 5607 volumes, all of which are accessible to students. Of these, 3198 volumes are bound periodicals which may be taken out as seven-day books, and 2409 volumes are for reference only, comprising dictionaries, encyclopædias, and the most useful books of reference in all departments.

The number of students of the "Annex" who have borrowed books during the past six years is shown in the following table: —

BORROWERS FROM THE "ANNEX."

Years.	1886–87.	1887–88.	1888–89.	1889–90.	1890–91.	1891–92.
1. Borrowers	58	66	72	84	82	111
2. Books borrowed . . .	1,230	1,545	1,531	1,329	930	886
3. Reserved books . . .	383	301	299	286	284	127

The figures in the third class are included in class no. 2. Less than half of the students of that institution use Gore Hall. Their own collection of 5500 books supplies naturally their main needs.

The following table shows for a series of years the use made of "Admission-Cards," by which students have access to special classes of the books for investigation at the shelves: —

ADMISSION-CARDS.

	1883–84.	1884–85.	1885–86.	1886–87.	1887–88.	1888–89.	1889–90.	1890–91.	1891–92.
History . .	45	52	68	74	71	81	53	36	41
Science . .	18	12	14	12	14	9	6	8	9
Art(incl.Music)	12	14	16	13	16	24	19	15	13
Literature .	37	42	49	62	54	27	32	38	45
Classics . .	42	53	52	47	42	24	22	18	22
Philosophy .	6	8	9	8	9	16	9	12	16
Theology . .	8	9	12	15	11	6	4	8	9
Polit. Econ. .	8	12	44	64	49	25	13	9	14
Total students	176	202	264	295	266	212	158	144	169
Times of use	3,520	4,020	5,820	7,375	7,980	8,390	6,490	2,512	3,629

STUDENTS' USE OF THE LIBRARY.

Students of	1886–87.		1887–88.		1888–89.		1889–90.		1890–91.		1891–92.	
	Whole No.	No. taking books.	Whole No.	No. taking books.	Whole No.	No. taking books.	Whole No.	No. taking books.	Whole No.	No. taking books.	Whole No.	No. taking books.
Divinity . . .	20	20	16	16	26	26	36	36	41	36	39	39
Law	180	108	215	175	217	138	254	151	279	147	363	165
Scientific . .	14	10	20	18	35	21	65	37	88	42	118	71
Resident Grad.	56	54	83	76	85	74	93	81	110	92	176	151
Senior Class .	239	231	237	234	214	206	278	254	289	260	271	251
Junior Class .	238	215	214	209	252	249	244	232	254	242	304	281
Sophom. Class	224	206	281	234	264	238	282	253	289	245	331	274
Freshm. Class	280	195	295	229	309	215	323	215	366	217	381	234
Sp. Students .	. .	. .	. .	. .	. .	. .	144	100	141	123	169	114
Totals . .	1251	1039	1331	1191	1402	1167	1719	1359	1857	1404	2152	1580

The percentage of users among the undergraduates during recent years is given in the following table: —

	1879–80.	1883–84.	1884–85.	1885–86.	1886–87.	1887–88.	1888–89.	1889–90.	1890–91.	1891–92.
Seniors	88	90	90	92	96	99	97	91	89	92
Juniors	83	88	93	96	90	98	99	95	95	92
Sophomores	83	85	86	93	92	94	90	90	84	82
Freshmen	65	80	80	78	69	77	69	67	59	61

Sixteen years ago only 57% of all the College students used the Library. In the last year, of the 1287 undergraduates only 247 failed to borrow books, and most of these probably used the reserved books in the Reading Room. The libraries of the class rooms and laboratories, as well as those of the students' clubs, doubtless provide reading, special as well as general, for a considerable number of undergraduates.

These statements do not cover the use of "reserved books." Nor is there any record of the use made of the 594 periodicals, current numbers of which are on file in the Reading Room.

The number of persons registered and entitled to take books away from the Library building is as follows: —

Students	1,831
Instructors	196
Others	298
Total	2,325

SUNDAY USE.

	1883–84.	1884–85.	1885–86.	1886–87.	1887–88.	1888–89.	1889–90.	1890–91.	1891–92.
Days open .	36	37	37	37	37	37	37	37	37
Users . . .	2,448	2,631	2,842	2,880	2,894	3,024	3,089	3,104	3,284
Average . .	68	71	76	77	78	81	83	83	88
Highest no.	95	105	108	118	106	108	118	132	119

Mr. Frank Carney, who under Mr. Tillinghast has charge of the shelves, reports that 4761 volumes have been permanently placed in the new stack since the last report, making 124,608 so placed out of the volumes constituting the Gore Hall collection.

Mr. Carney verified the shelf-lists of the classifications in the stack in July, showing about 165,000 volumes. The number of volumes which failed to be accounted for was 65. Of those reported missing in previous years 30 were found in their places, having been silently returned during the year. Three of these were reported missing as far back as 1883. Of books reported missing since 1883 there are still 437 unaccounted for; 270 having disappeared from the reserved books, and 167 from the stack. Of these 65 unaccounted-for volumes of the year just closed 26 have disappeared from the books of reference, reserved books, and other collections exposed to the handling of all frequenters of the Library, the other 39 having disappeared from the shelves to which only the staff of the Library,

officers of the College, and a limited number of other persons have access. In the stack, fewer cases than usual of disarrangement were discovered, 123 books being found on wrong shelves.

Mr. Lane furnishes the following report of the work of the Catalogue department: The total number of titles catalogued for the College Library in Gore Hall during the year (1891–92) has been 9082 (against 7494 last year), and for the various department and class-room libraries 2381 (against 2654 last year).

The work of the past year may be compared with the work of other years as follows: —

	1884–85.	1885–86.	1886–87.	1887–88.	1888–89.	1889–90.	1890–91.	1891–92.
1. Gore Hall cards prepared.	30,968	32,580	29,229	23,696	21,256	24,384	21,252	27,167
2. Titles catalogued for departments. . . .	. .	957	1,021	1,291	1,721	1,438	2,654	2,381
3. Volumes received in Gore Hall.	12,442	6,730	9,108	10,885	9,045	13,140	9,606	9,726

The use of printed cards in the public card catalogue continues, 9598 having been printed, against 6658 for last year. About one-half of the accessions for the year are still catalogued on written cards.

I append a summary of some points in the more extended report which Mr. Lane has made.

"The public card catalogue is again becoming crowded, and at the end of another year will imperatively demand increased accommodation. In spite of changes which have made it possible to cancel several thousand cards, the net additions since the summer of 1886, when a slight enlargement of the catalogue case was last made, have been over 125,000 cards, or something more than 130 running feet. Temporary relief has been obtained for the present in the subject catalogue by some readjustment of the cards in the drawers.

"A convenient and detailed catalogue of the United States documents since the fifteenth congress has been prepared by using a copy of the List recently printed by the Government. In this the volumes in our set (which is nearly complete) are checked, and our shelf-marks inserted, with occasional notes in regard to imperfections and differences. This has made it possible to relieve the card catalogue of a large number of cards, and will also in the future save the

insertion there of many more. The British Documents were catalogued last year in a somewhat similar way, which allowed the removal from the catalogue of a considerable number of cards, and at the same time furnished a much more satisfactory record than it is possible to make on the card catalogue. Certain other methods of recording in detail the receipt of certain classes of books have resulted in removing from the card catalogue the final and complete information in regard to these works. The title of every work remains, but, in these cases, the detailed record of what parts or volumes have been received is to be found elsewhere. A note of reference or explanation is always inserted. This practice having become well established, it is worth while to state briefly what these various supplementary records now are. They are the following: (1) The Periodical book, in which the current numbers of periodicals are entered as they are received, each periodical having its own page, appropriately ruled for a systematic record in tabular form. On the card catalogue the *first* volume or volumes only of each set is catalogued, and the note, "to be continued," indicates that it is received regularly. If a periodical changes its title, if it comes to an end, or if our subscription is stopped, the record on the cards is completed to that point. (2) The Continuation catalogue, a series of large volumes, in which a more satisfactory record can be made of many sets of government and society reports received annually or irregularly. In these volumes a page is devoted to each publication, and a line to each volume. Changes of title can be shown more neatly than on the cards, the deficiencies in our sets can be indicated more plainly, and when new volumes come in, the previous record does not have to be tampered with, nor do the cards have to be continually removed from the catalogue, altered, and put back again. For each publication catalogued in this way cards are inserted in the card catalogue under the proper author and subject headings, which bear the title of the publication, the date of the earliest volume on our shelves, the shelf-mark, and a printed note which reads, "for detailed statement of the volumes in this Library, see the Continuation Catalogue, vol. . p. ." (3) The Continuation cards, upon which a temporary record is kept of many works in course of publication, which are received in parts but will eventually be completed. The object of these, also, is to prevent the continual removal of cards from the catalogue. (4) The catalogue of British documents, which is on larger cards bound together in one of our new catalogue binders, and may be consulted at the Delivery desk. (5) The catalogue of United States documents, for which the printed list issued by the government has been used. This is also kept at the Delivery desk. (6) The printed

catalogue of the Dante collection. A bound copy of this is placed on the catalogue case directly over the Dante drawer. In the drawer of the catalogue, under Dante, none of the titles of this printed list are repeated, the only titles found here being those of books received since that list was compiled. (7) The Contents book, in which for a number of years long tables of contents have been pasted, which were considered too cumbersome for the cards. Since the introduction of printed cards, there has been less occasion to use this book. (8) A rough but highly useful newspaper catalogue made some years ago.

"I have made some improvement in our practice in the matter of full names, especially of French and German authors. It is the general custom of all large libraries to give these names in the fullest form that can be found, including all the supernumerary baptismal names which are seldom or never used by the author in his books. I am convinced that this is a serious mistake, and that the name on our cards should agree as nearly as possible with the form which the author uses on his title-pages, with the single exception that initials should be filled out when they can be. A radical change, however, cannot be carried out when a catalogue already consists of over 700,000 cards.

"An extensive collection of recent college catalogues, both American and foreign, is kept in one of the cataloguing rooms. These have never been regularly catalogued, but printed cards calling attention to the collection have been recently inserted in the card catalogue under the name of each institution represented.

"During the year an improved and very satisfactory system of keeping a temporary record of books on hand that are not yet catalogued has been introduced.

"In the autumn a supplement to the Index of the Subject catalogue was printed, including all such new headings and references, with occasional corrections, as the work of the year had made necessary. This has been cut up and pasted in the interleaved copies in the Delivery room."

The number of volumes waiting to be catalogued October 1, 1891, was 2039. This number includes 881 volumes of the Gurney and Lowell gifts, not yet catalogued, and a few smaller lots laid aside for work more pressing. The scant space in the Library for handling large gifts of books obliges the staff to work on such gifts in small lots. Any display of them on tables in large masses is prevented by the recurrent arrival of invoices of fresh books which require prompt attention.

The work of the Ordering department, in charge of Mr. Tillinghast, is shown in the following statement: —

At the close of the Library year the estimated cost of orders then out (including "continuations," reckoned at $6732) was about $13,164, and it was expected that about $7000 of these would come in, to be paid for during the coming year. We have an income for the next year of about $18,000; against this amount must be set off about $9800 (that is: orders out, $7000; periodicals and binding, $2500; freight, $275), leaving a free balance of $8200. It is further to be considered that some of the items included in our annual book-income are funds with such specific objects that they must be left out of view in providing for general purchases.

FINANCIAL CONDITION (*Gore Hall only*).

	1886-87.	1887-88.	1888-89.	1889-90.	1890-91.	1891-92.
Income for books *	$19,341	$20,407	$19,881	$16,682	$16,565	$18,824
Spent	14,549	16,062	17,347	15,172	13,905	16,566
Balance	4,791	4,345	2,534	1,510	2,660	2,258
Appropriation . .	17,500	19,000	20,050	15,480	11,920	18,700
Unpledg'd balance†	12,032	12,080	11,238	5,672	9,602	9,501

PAYMENTS AND PURCHASES (*Gore Hall only*).

Years.	Income, exclud. balance brought forw'd.	Payments.	Vols. bought.	Vols. of serials added.	Sum of last two columns.
1884–85	$15,094	$16,534	5,932	560	6,492
1885–86	15,332	13,923	3,032	682	3,714
1886–87	17,052	14,549	4,490	746	5,236
1887–88	15,732	16,061	5,389	798	6,187
1888–89	15,799	17,339	4,925	638	5,563
1889–90	15,275	15,137	4,168	838	5,006
1890–91	15,853	13,905	3,230	855	4,085
1891–92	15,756	16,566	4,904	694	5,598

The figures in the column of "Payments" are taken from final figures of the Treasurer's Report, which may in a slight way differ from the accounts kept in the Library, the figures of which appear against the item "Spent" in the previous table.

* The items of income include unexpended balances of the previous year.

† What is called "unpledged balance" is income free from obligations for serials and outstanding orders.

ESTIMATED AMOUNT IN DOLLARS OF ORDERS SENT TO AGENTS (*Gore Hall only*).

	1886–87.	1887–88.	1888–89.	1889–90.	1890–91.	1891–92.
American	987	1,300	1,200	895	724	2,157
English	2,380	2,150	2,500	2,043	1,334	2,844
French	1,282	1,035	910	1,234	585	1,437
German	2,170	1,950	2,450	1,401	1,139	3,204
Italian	225	112	325	200	111	717
Scandinavian	21	56	106	52	50	78
Totals	7,048	6,805	7,459	6,276	4,161	10,506

Lesser agencies are not noted in this table, but are included in the totals. The division among agents gives only an approximate representation of division by languages, since books in all languages may be bought in London, as Spanish and South American books usually have been, and Slavic books are mainly bought through the German agency. We usually buy more titles in German than in any other language.

TABULATION OF ORDERS (*University Library*).

Order slips on hand October 1.	1887.	1888.	1889.	1890.	1891.	1892.
Book orders out	1,539	2,112	2,875	1,242	2,350	2,658
Continuation orders out	1,819	1,951	2,163	2,272	2,400	2,539
Total active orders	3,358	4,063	5,038	3,514	4,750	5,197
Cancelled orders.	6,400	6,800	7,200	7,675	8,600	9,200
Deferred orders	488	541	533	1,488	942	984
Countermanded orders	. .	. .	. .	943	. .	. .
Grand total	10,458*	11,604*	12,977*	13,930	14,292	15,381

The estimated cost of continuations, which is a fixed liability for our book funds, — though only about one-half of the charges is likely to be actually incurred each year, owing to the irregularity of such serials, — has been growing rapidly of late years, as will be perceived from the following table: —

* Including some items now embodied in cancelled orders.

Year.	Estimated cost of continuations.	Total estimated cost, books and serials.	Continuations.
1880–81	$2,008	. . .	. .
1881–82	3,386	$12,345	. .
1882–83	4,567	15,956	. .
1883–84	4,821	20,495	1,422
1884–85	4,828	17,764	1,536
1885–86	5,163	14,228	1,637
1886–87	5,102	14,375	1,819
1887–88	5,770	14,855	1,951
1888–89	6,079	16,104	2,163
1889–90	6,191	17,186	2,272
1890–91	6,406	11,124	2,400
1891–92	6,732	20,257	2,539

It needs to be stated respecting the last column that it includes continuations for class-room and other libraries, while the figures for the other columns make no account of the cost of such. These class-room serials have not been of any extent till recently.

Mr. Tillinghast adds: "The percentage of continuations on which nothing has been received during the year is nearly 65% from all agents. I have in practice allowed for about one half to come in."

Our three principal foreign agents, in London, Leipzig, and Paris, procured for us books in the following proportions to their orders: Harrassowitz, 66%; Reinwald, 68%, and Kegan Paul, 71%. We received during the year 6 English shipments, 9 German, 6 French, 5 Italian, and 2 Scandinavian.

The following table shows the number of books recommended to be bought for the University Library, the number of these already in the Library; the number ordered (including those reordered), and of these last the number for which there was reason for haste in transmitting the order: —

	1888–89.	1889–90.	1890–91.	1891–92.
Recommendations	4,904	4,404	4,545	4,326
In the Library	1,347	819	711	953
Ordered	3,056	2,505	4,863	3,598
In haste	165	128	122	197

It must be understood that the figures in a column have no relation to other figures in the same columns, for books may be recommended in one year and ordered in the following year, etc.

GIFTS.

Years.	Vols. and pamphlets.	Proved to be duplicates.	Put on shelves.
1883–84	11,868	4,348	7,520
1884–85	12,784	5,288	7,496
1885–86	8,538	2,554	5,984
1886–87	7,989	2,437	5,544
1887–88	9,649	2,506	7,143
1888–89	9,815	2,835	6,980
1889–90	12,673	3,354	8,719
1890–91	9,992	2,257	7,735
1891–92	5,566	1,795	3,771

The small numbers for the *past year* is owing to delays in entering the gifts for July, August, and September.

Mr. Henry C. Badger gave up the charge of the map collection in July, 1892, and arrangements are not yet complete for continuing a supervision of that department.

Mr. John H. Storer, Curator of Coins, reports a completion of the work of cataloguing the coins, as follows: —

"With the assistance of my brother, Dr. Malcolm Storer, I have finally completed the work of preparing a full and methodical catalogue of the collection of coins belonging to the University.

"The general division into ancient and modern has been observed. Under the ancient coins are included the Greek, Roman, and Byzantine, as follows: —

	Gold.	Silver.	Bronze.	Billon.	Total.
Greek	. .	12	80	. .	92
Roman	3	127	707	71	908
Byzantine	4	7	187	13	161
Total	7	146	924	84	1,161

"The modern coins are arranged alphabetically, by Countries, under the great geographical divisions. Their numbers and metals are as follows: —

Gold.	Silver.	Bronze.	Billon.	Nickel.	Brass.	Total.
5	355	1,190	131	21	31	1,739

Giving thus a grand total of 2900.

"The 1739 modern coins are divided as follows: Africa, 45; America, 668; Asia, 79; Europe, 947.

"Donors during the past year have been: —

David Humphreys Storer, M.D.	42
John Witt Randall, M.D.	100
Total	142

"As would be expected, the larger part of the coins in the collection is comparatively common and of little value, and some of the more rare Roman coins are of doubtful authenticity. Yet there are scattered through the collection a number of extremely rare and valuable coins — notably a New England shilling, in very fine preservation, and the collection of beautiful Roman coins, presented by Mr. Toppan, which would do honor to any cabinet, while the larger and more common part of the collection is of a nature sufficiently varied, as regards time and place of issue, to furnish to the student valuable assistance in the study of Numismatics and Arts.

"The coins have been catalogued by means of cards and it will be a matter of the utmost ease for the student to find any coin desired, as soon as a place suitable for their exhibition is provided.

"The present collection is well suited to be the nucleus of a much larger collection, and it is earnestly hoped that graduates, having in their possession any coins that they would like to give to the University, will send them to the curator. Any specimens, however common, will be gladly received, as duplicates can be exchanged for coins not already in the collection. Donors will be credited with their donations both in the catalogue and in the Curators annual report."

Arrangements have been made for the exhibition of the collection in frames, which swing about a post, and will show both sides of the coin, somewhat after the fashion of those which are used in the exhibition of engravings. The catalogue is complete, and will be kept at hand in drawers.

Mr. Kiernan, the officer immediately in charge of the circulation of the books, makes to me the following report: —

"If the library is to continue to perform the work which the present methods of instruction demand of it, immediate steps should be taken to enlarge the facilities for such work.

"The number of persons registered to draw books in 1885–86 was 1353, and in 1891–92, with no better accommodations, the number has increased to 2325. The number of readers (of which no record is kept) has increased in much larger proportions. The reading-room is often so overcrowded that students have great difficulty in finding either a seat or table-room. The floor, and the alcoves devoted to

reserved books, are obstructed by tables and chairs, making it impossible to reach the books without disturbing the reader. The delivery room is also at times so uncomfortably crowded that the use of the card catalogue, and the work of the delivery department are much impeded. These conditions can be much improved by some method of lighting the building. The period of greatest activity and pressure is from October to January inclusive, and during these months the Library closes at any time from 3 to 5 o'clock, according to the state of the sky. This early closing compresses the work of the Library into a few hours, and is a serious obstacle to a student who has lectures during several hours of the day, as it leaves but a limited time for library work. If the reading-room were lighted, and open in the evening, and the time for students' work thereby increased, much crowding and confusion would be avoided. The want of sufficient light is also felt at all hours of the day in many parts of the Library. On cloudy days the light from the ground glass windows in the reading-room is dim and uncertain. In the delivery room, in the reading-room basement, and on the first and second floors of the stack it is very difficult to find books, and the pages often report books "out" from want of light to find them. This lack of light, and the confusion arising from the overflow of the shelves in the classified portion of the stack, cripples the usefulness of the Library, by causing much delay in the delivery of books. The want of light also exposes the library to a very serious danger. In the delivery room, where bound periodicals and books of reference are kept, and where the light is very imperfect, several cases have been reported the last year of thoughtless persons lighting matches to aid them in their search for books. This has also been done in the reading-room. The cases reported occurred in parts of the building under constant supervision, and where, probably, there would be no serious results; but the same danger exists in other parts of the Library where there is no supervision. Last year 169 cards were issued to students, giving admission to the stack, and to the alcoves in Gore Hall, including the basement. The old part of the building is highly inflammable, and a lighted match carelessly dropped in a dark corner might lead to a serious disaster.

"This condition of the Library would seem to warrant a demand for enlarged and safer facilities at an early day."

I have in earlier reports exhausted the language of warning and anxiety, in representing the totally inadequate accommodations for books and readers which Gore Hall affords. Each twelve months brings us nearer to a chaotic condition. The Library goes on with

its natural accessions, and friends of learning give us the means to add more and more to our growth. We have as yet no assurance to give them that their gifts can be properly cared for and the use of their books properly regulated for the general good.

JUSTIN WINSOR, *Librarian.*

NOVEMBER 8, 1892.

THE HERBARIUM.

TO THE PRESIDENT OF THE UNIVERSITY:

SIR, — During the past year the Herbarium has sustained a most serious loss in the death of its late curator. For many years closely identified with the development of the collection, Dr. Sereno Watson has faithfully cared for its interests and amply contributed to its past progress and its present completeness and order. A man of most methodical habits, possessed of a wide and critical knowledge of our flora, and gifted with powers of continued application he was singularly fitted for his position, and remarkably successful in his botanical work, especially in characterizing new plants and elaborating difficult groups. In his will Dr. Watson bequeathed to the Herbarium his copy of the Century Dictionary, of which he was at one time the botanical editor, and his valuable gold watch and chain, presented to him in token of high regard by the late distinguished botanist Leo Lesquereux.

The permanent fund of the Herbarium has been increased during the year by more than $5000. Of this sum, $2500 was most generously contributed by an anonymous friend, and the remainder has accrued from an excess of the income over the current expenses.

The income of the Herbarium temporarily has been so augmented by the generous gifts for present use, mentioned in a previous report, that it has been possible to secure a larger corps of assistants than ever before. As a result the material received has been more rapidly determined and distributed, and the additions during the year to the organized collection have amounted to 12,500 sheets, or over 20,000 plants, making considerably the largest recorded annual increment. A large part of these plants come from the herbarium of the late John Ball, Esq. This extensive and very rich collection to which reference has already been made in previous reports, is still being received in instalments from the Herbarium of the Royal Gardens at Kew. About two-thirds of it has already been worked over, and the numerous duplicates have been divided into seven sets, which

have been sold at a rate sufficient to cover the cost of the work. The institutions purchasing the sets were as follows: The Harvard Botanical Museum; the Department of Agriculture, Washington; the Missouri Botanical Gardens, St. Louis; McGill University; Indiana University; the Philadelphia Academy of Science; and the Iowa University. Beside the Ball collection the principal additions to the Gray Herbarium during the year by gift or exchange have been as follows: from the Royal Museum of Berlin, an extensive collection of plants from Tibet (1200 specimens) prepared by the Schlagintweit Brothers, also a set of South African plants (134 specimens) collected by Marloth; from the Museum of Copenhagen, a collection of 100 Greenland plants; from William Mitten, Esq., a set of Powell's Samoa mosses; from C. G. Pringle 350 Mexican plants of especial value and interest, including a number of new species; from the Royal Gardens of Kew, a collection of ferns and miscellaneous duplicates, chiefly West Indian (235 specimens); from the Philadelphia Academy of Science, a collection of Greenland plants (65 specimens); from the Herbarium of Columbia College, a collection of 250 miscellaneous duplicates and a set of 60 mosses; from the Government Museum at Cape Town, a century of South African plants; from the Department of Agriculture a set of 125 Florida Hepaticae. The following sets have been acquired by purchase: a collection of plants from Bolivia (375 specimens), distributed by Drs. Britton and Rusby; a collection of plants from Paraguay, prepared and distributed by Dr. Morong; a century of Canadian Hepaticae, distributed by Professor Macoun; 140 plants of Alaska, collected by Miss G. E. Coolley.

Early in the year Miss J. A. Clark, who had charge of the Herbarium Library, was called to a similar position in the Department of Agriculture. It was not thought best immediately to fill the vacancy, and thus the Herbarium has been without a regular librarian most of the year. Nevertheless much has been done in the library by the assistants. The shelves have been numbered, and the shelf-numbers of nearly all the books have already been entered in the catalogue, thus greatly facilitating reference to the library. The rearrangement of the books, which was made about two years ago, naturally caused temporary inconvenience, but the system, which is the same as that adopted in the very extensive botanical library of the British Museum, in which the floras are arranged geographically, is proving a very convenient and satisfactory one. During the year 85 volumes and 320 pamphlets have been added to the library.

In July Professor Charles R. Barnes, of the University of Wisconsin, who had in charge the revision of Gray's Field, Forest and

Garden Botany, was obliged through pressure of other duties to give up this work, and it has now been put into the hands of Professor L. H. Bailey, of Cornell University, whose wide acquaintance with cultivated plants eminently qualifies him to carry it on. In August, Mr. Henry E. Seaton, M.A., who had been instructor in botany and curator of the herbarium in the University of Indiana, was appointed Assistant-Curator for the year 1892-93. Mr. Seaton has had special opportunities for studying the plants of the southwestern United States, and has recently made extensive collections in Mexico, an experience which is especially advantageous in dealing with plants from that country which is still so prolific in new and interesting species.

During the year the present curator has characterized two new genera and forty-five new species and varieties, which have been published in the *Botanical Gazette* and *Proceedings of the American Academy of Arts and Sciences*. Mr. M. L. Fernald, assistant in the Herbarium, has published a Catalogue of the Flowering Plants of Maine. Work on the Synoptical Flora of North America has been resumed, and the curator now devotes to it the greater part of his time.

BENJAMIN L. ROBINSON, *Curator*.

CAMBRIDGE, NOVEMBER 30, 1892.

THE BOTANIC GARDEN.

TO THE PRESIDENT OF THE UNIVERSITY:

SIR, — As Director of the Botanic Garden, I have the honor to present my report for the academic year 1891–92.

The weather throughout the year has been, on the whole, very favorable for the cultivation of our out-door plants. From notes made by the head gardener, Mr. Robert Cameron, it appears that the autumn and the early part of winter were mild, and enabled us to keep out of doors later than usual a considerable range of plants for which we generally provide shelter very early. While the long period of mild weather we had in the winter lasted, only small fires had to be kept in our greenhouses; we were able to secure for our plants a more natural heat with a smaller expenditure of coal than in most previous years. In March we had the heaviest snowstorm of the year. Soon after that storm it was noticed that many plants in our hedges and other groups began to die from some cause not as yet ascertained. The planting season, in April, May, and June, was

exceptionally good, and all of our seedlings got an excellent start. But the weather during July and August was hot and dry, so that a great deal of watering had to be done all over the garden to save the plants from drought. As we have to pay for all the water from the city supply which we use in the houses or on the grounds, our expenditure on account of the drought was large. Nevertheless, taking the year all through, the cost of running the Garden itself has been about the average, and we have had comparatively few losses. Mr. Cameron thinks that we have begun the current year with a larger number of plants and all in better condition than at any time since he has been connected with the Garden.

In February, Mr. Cameron was detailed to accompany the artist, Mr. Rudolf Blaschka, to Jamaica. Mr. Blaschka, in the interest of the Botanical Museum, desired to study certain tropical plants under favorable conditions of growth, and he wished to have a competent assistant in the work of collecting. Mr. Cameron carried out all of his wishes faithfully, and in addition secured time to collect plants for the Garden. The economic series, alone, comprising such plants as the source of coca, mace, nutmeg, etc., is regarded by us as one of the most important acquisitions of recent years. Mr. Cameron obtained also a large suite of ferns, both tree-ferns and filmy, many palms, and interesting orchids. The latter, though not so showy as the orchids from Central America proper and the East Indies, are of great importance in illustrating morphology. The journey was of value to the Garden through the collection of useful products of plants, the establishment of advantageous exchanges, and the acquisition by our head gardener of a wider knowlege of the management of tropical plants under cultivation.

The number of species cultivated in the grounds is about the same as that mentioned in the last report. A few changes have been made in arrangement, chiefly for the convenience of our visitors. The number of visitors during the year has been nearly the same as before reported. I regret, however, to say that during the autumn we have been more troubled by unruly boys than ever before. It became necessary at last to ask for police protection. A watchman detailed by the College was on duty for more than a fortninght, with good results. One arrest was made, but the prosecution was not carried forward. It is very mortifying to think that our Garden, which we make as free as any public park in Cambridge, cannot receive the protection of the public itself.

In the greenhouses, important changes have been made. Our large palms had grown through the roof. At the suggestion of a member of the Garden Committee, these beautiful specimens were

tendered to the Horticultural Commissioner of the Columbian Exhibition at Chicago. The offer was accepted, and after removing the rear wall of the greenhouse, the palms were safely taken out. The palm-house remains, however, so crowded that a casual visitor would at the present moment see no gap in the number of the plants.

We have been gratified, and yet embarrassed, by the notification of a gift which is to come to us from Australia. The celebrated Baron von Mueller has secured and is to ship, at his own charges, one of the giant Tree-ferns of Victoria. An intimation in his letter leads me to think that it may be agreeable to him to have this magnificent plant exhibited at Chicago, and it is now highly probable that the plant will be sent by us in its packing cases directly to the Commissioners at Chicago. This expression of good will on the part of Baron von Mueller is only one of many during the last few years.

Repairs on houses have been extensive and thorough.

Under the head of the University Museum are grouped the Laboratories of Botany, the Ware Collection of Blaschka Glass Models of flowers, and the Economic Collection.

Concerning the Cryptogamic Laboratories, Professor Thaxter communicates the following note:

In the absence of Professor Farlow, the courses in Cryptogamic Botany were given by Professor Thaxter. Botany 2 was unusually large, being taken by 47 students, as follows: 2 Freshmen, 11 Sophomores, 9 Juniors, 10 Seniors, 6 Graduate students, 5 Scientific, 4 Special. The same general plan was adopted that has characterized the course in previous years. Botany 4 was taken by 14 students, as follows: 1 Freshman, 2 Sophomores, 1 Junior, 4 Seniors, 4 Graduate students, 2 Scientific. In both these courses Mr. H. M. Richards acted as assistant. Botany 20*b* was taken by 5 students, three of whom accepted positions in other educational institutions at or before the end of the college term.

The Phanerogamic Laboratories have been, buring the past year, largely under the careful superintendence of Mr. W. F. Ganong, Instructor in Botany. By his judicious management, improvements have been made in many directions, and he has assisted much in the arduous work of preparing the economic specimens for exhibition. In the spring, he was granted leave of absence to accompany Mr. Blaschka in a journey for the collection of material, to Arizona, California, and Colorado. The whole department has profited by his journey.

The permanent equipment of the Botanical Laboratories, to which the entire second floor is devoted, proceeds steadily. New tables of

an improved pattern, fully furnished for histological work, have been placed in all of the advanced laboratories and are giving the greatest satisfaction. In the largest laboratories have been placed three glass cases of good appearance, in which we are now enabled for the first time to store our valuable physiological apparatus when not actually in use, in such a way that it is not only safe from dust and dampness, but also is always in sight for reference, illustration or instruction. One case is devoted to appliances which, superseded by our more modern equipment, have now an historical value solely, and these are being arranged to illustrate their development. A much needed Wardian case for keeping plants alive for physiological experiments has been built over a window of the research laboratory.

It is to be regretted that progress has not been made in the arrangement of the students' reference herbarium. This is still stored, partially in over-filled drawers in the Instructor's Laboratory, and partly in bundles, in the room below, the latter part necessarily inaccessible to students. Until proper cases can be provided for its reception, it is impossible to utilize fully its valuable material.

The classes during the year were very much the largest in our history. Botany 1 included 210 students, and 24 more at lectures only. The great demand for laboratory accommodations, instruments, and materials made upon us by this large number, was met without the least difficulty, owing to our ample laboratories and their full outfit for elementary work on the one hand, and the adequate supply of plants from the greenhouses of the Bussey Institution on the other. The employment of five advanced students of Botany as special assistants was to the advantage not only of the course but to themselves as well. The course covered the general principles of Botany with full laboratory practice.

In Botany 3, 15 students completed the usual course on Histology and Physiology. In Botany 20*a*, 9 students made special studies, and, in some cases, investigations upon selected topics.

The Botanical Library has received several valuable acquisitions during the year.

The number of books, exclusive of pamphlets, in the Library of the Phanerogamic Laboratory is between six and seven hundred.

By an arrangement with the Herbarium, a table has been set apart in our Laboratory for the display of botanical periodicals. On this table are now placed the current periodicals devoted to all branches of Botany. The constant use that is made of these, under the present convenient conditions, would satisfy any observer that the number of periodicals taken ought to be increased until our list comprises all current literature upon the subject.

The meetings of the Botanical Club have been largely attended. The Botanical Conferences have served a good purpose throughout the year.

At the present writing I am in receipt of a gift for the Library which may properly be mentioned as coming within the year of this report. Dr. E. Lewis Sturtevant, of South Framingham, well known as an assiduous collector of books and an untiring collater of notes, has presented to our Library a duplicate set of all his notes concerning Edible Plants. These are arranged in a sytematic manner, so that every reference up to the year 1890 can be readily found. The gift is one of the most important that our Botanical Library has ever received.

The Ware collection of Blaschka glass models of flowers has been increased by numerous specimens during the year, but the preparation of new models has been retarded owing to a journey to the tropics and to our west coast made by the younger Blaschka for the collection of material. During these journeys he was accompanied by the Head Gardener or by the Instructor in Botany. Abundant alcoholic and dry material was brought together, and analyses and drawings of the more interesting species made. These have been carried back in safety to Germany, where the two artists are now busily at work. A shipment is expected in February, and the specimens will be at once displayed in the large room. The collection is now accessible to visitors on every day of the week, on weekdays from nine until five, on Sundays from one to five. The visitors on Sundays appreciate the generosity of the Corporation in providing this means of instruction.

A bronze tablet commemorative of the late Dr. Charles Eliot Ware, to whom the collection has been dedicated by his wife and daughter, has been placed in the large exhibition room.

In the gallery of the fourth floor we have, framed and exposed for exhibition, about one hundred photographs illustrating Geographical Botany. The frames are constructed in such a manner that it is possible to replace one set of photographs by another at convenient intervals of time. In this way it is possible to display a large part of our increasing collection, now numbering over four thousand photographs, many of them of full size. It has been gratifying to see that the gallery of photographs has been of interest to visitors. It is proper to remark in connection with this that our collection of lantern slides illustrating the same subject has been increased during the year, and constant accessions are being made from copies of photographs newly acquired.

The Economic Collection has grown rapidly during the past year. We were fortunate in securing the services of Mr. John H. Sears, of

Salem, who has obtained from numerous sources in Boston and vicinity illustrations of useful plants which have been hitherto lacking in our collection. He has been very prudent in the expenditure of money, and tireless in his efforts.

Mr. J. H. Maiden, of Sydney, New South Wales, has sent a large suite of specimens illustrating his treatise on the useful plants of Australia. Without enumerating the special gifts, it is sufficient to say that the whole exhibit when displayed will serve to illustrate nearly one-half of Mr. Maiden's large treatise.

Contracts for cases for the exhibition of the Useful Products of Plants have been arranged, and the cases now in process of construction will be ready for exhibition of specimens early in January. I am gratified to be able to announce that Dr. Farlow will contribute to this collection certain cryptogamic specimens.

Miss Laura Norcross has enriched our collection by the gift of a fine, framed engraving of Linnaeus, based on the original in the Herbarium of the Academy of Natural Sciences in Stockholm. It is a great addition to the gallery where our photographs are exhibited.

The following statement has been furnished by the Treasurer's Office. It includes all gifts of money for present use, received during the College year.

BOTANIC GARDEN AND BOTANICAL MUSEUM.

DR.		CR.	
Paid by Bursar for salaries,		Income of Fund	$2047.79
labor, repairs, etc, . . .	$9433.47	Income of Lowell Fund . .	2995.96
Interest on advances . . .	345.28	Income of J. L. Russell Fund	25.75
		Rent of House	700.00
		Anonymous gift	2500.00
		Henry Lee gift.	1000.00
		F. H. Peabody gift	500.00
	$9778.75		$9769.50

It is gratifying to announce that the Lowell Fund for the Botanic Garden has been increased, by an additional gift of one thousand dollars, from Miss Anna C. Lowell. The income from this fund is, at the present rate of interest, about three thousand dollars, being almost one half of the whole amount required annually for the support of the Garden (exclusive of the Botanical Museum).

It remains for me to express my renewed thanks to the Chairman and the members of the Garden Committee for their continued inter-

est in the welfare of the establishment and for their hearty co-operation in all measures for its advancement. The Committee on the Botanical Department have visited the Laboratories and lecture-rooms, and have also aided us in many ways, by their advice and benefactions.

GEORGE LINCOLN GOODALE, *Director.*

NOVEMBER, 1892.

THE ARNOLD ARBORETUM.

TO THE PRESIDENT OF THE UNIVERSITY:

SIR, — I have the honor to submit the following report of the condition and progress of the Arnold Arboretum during the year ending August 31, 1892: —

A larger amount of work has been done in the Arboretum during the year than in any other in its history. This has been made possible by generous gifts of money available for construction, made by Frederick L. Ames, John L. Gardner, and Arthur W. Blake.

The trees belonging to the Vetch family or *Leguminosae* and a few genera of the Ash family have been planted; and the border and roadside shrubberies have been extended. The principal work accomplished, however, has been in draining and grading in preparation for future planting, and its results will not appear for a year or two. The brook which enters the Arboretum at the Walter Street entrance has been deepened and widened for a distance of 1675 feet, in order to secure drainage for the low ground in the western part of the Arboretum. The north side of Bussey Hill, or about fifteen acres of land which was planted several years ago with the collections of Birches, Elms, Catalpas, and Ashes, has been drained and graded, and is now ready to lay down in permanent lawn. About two thousand squares of peat have been dug and spread on the surface of the dry hills or stacked for future use; and the Goldsmith meadow near the principal entrance from Centre Street and the parkway has been drained by cutting wide channels through it to connect with the improved outlet made by the Park Commissioners of the City of Boston. Of stone drains, 4667 feet have been laid in different parts of the Arboretum, and 2689 feet of open ditches have been made. The Walter Street drive, 1800 feet in length, has been finished and opened to the public, and 2000 feet of the drive around the north side of the Bussey Hill has been completed. The remain-

ing drives are subgraded, and it now seems probable that the Park Commissioners of Boston will finish the whole system and open it to public use before the end of 1892.

The collections of living plants are in good condition, and the trees in the natural woods and in the systematically arranged groups have made satisfactory progress.

Instruction in dendrology of a popular character was given by Mr. J. G. Jack, in May and June, who lectured to a class of thirty men and women, chiefly teachers. In future two courses of these lectures, one in the spring and one in the autumn, will be given in the Aboretum, to meet the demand for exact information about trees and shrubs, which seems to be increasing in this country.

Interchange of Plants and Seeds.

The interchange of plants and seeds with other botanical and horticultural establishments has been continued. There were distributed 24,979 plants (including grafts and cuttings), and 633 packages of seeds as follows: —

To all parts of the United States, 24,732 plants and 25 packages of seeds; to Canada, 247 plants and 12 packages of seeds; to different European countries, 94 packages of seeds; to Japan, 27 packages of seeds. There have been received at the Arboretum 4466 plants and 203 packages of seeds.

Herbarium and Museum.

The museum and herbarium building, presented to the Arboretum by Mr. Horatio Hollis Hunnewell, and described in my last report, has been completed and will be occupied early in the next college year. To carry out a resolution made long ago, I have transferred to the Arboretum my technical library, composed of works on dendrology, silviculture, forestry, systematic botany, and geography: and funds have been provided to complete it.

There have been added to the herbarium 350 sheets of dried plants during the year. The third and fourth volumes of "The Silva of North America," carrying the work through *Saxifragaceae*, have appeared during the year, and fifty-two numbers of "Garden and Forest" have been published.

C. S. SARGENT, *Director.*

THE CHEMICAL LABORATORY.

To the President of the University:

Sir, — During the past year the equipment of a new laboratory room for organic chemistry, referred to in the last report, was completed and the premises became occupied at the mid-year. This long needed addition to our accomodations has been successful in all respects but one, and that one is the ventilation from the hoods. We had hoped to secure a sufficient outward current by means of ventilators through the roof, actuated by steam radiators. But in consequence of the construction of the roof the builder found it necessary to reduce the capacity of the ventilators to one-half of that which had been planned, and the result is what might have been anticipated. As has been before said, Boylston Hall was never designed for a large chemical laboratory, and the provisions for ventilation are wholly inadequate for its present use. The want of good ventilation is felt more or less in all of the rooms, but especially in the large laboratories in the roof, where the height of the ventilating shafts is necessarily restricted, and the ascensional force of the column of heated air proportionally feeble. If the building is permanently to be used as a chemical laboratory some efficient system of ventilation which would relieve all the large rooms of noxious emanations and chemical vapors should be provided, and this is even more important for the lecture rooms than for the laboratories. With a full knowledge of the construction of the building the only plan which seems to the Director feasible, is the use of a powerful fan blower, which would distribute a great volume of moderately heated air to the several rooms, and fortunately the construction of the building admits of placing the air conduits necessary for the purpose, without materially disturbing existing arrangements. Such a system is actually in use in the large New Chemical Laboratory at Zurich, with satisfaction, and it could be added to our plant at a cost not exceeding twenty-five hundred dollars. Such a system would have the great advantage of not disfiguring the building on the outside, a very important consideration seeing the very public position in which it is placed. Any efficient system depending on removing the air by suction would involve the erection of large and unsightly ventilating shafts on the roof, or else the building of a very tall independent chimney at the back of the hall, such as are common at many manufactories in this country; and as has been effectively

applied in the ventilation of a large working laboratory in connection with Owens College, at Manchester, England.

If the building is permanently to be used as a chemical laboratory some efficient system of ventilation must be provided as I have above said; but can not a new and better building be obtained for the Chemical Department? adapted to the requirements of the modern science, and comparable with the best chemical laboratories in other institutions. The department has already outgrown the present building. Our classes are constantly increasing, and we can not accommodate any more working students except by unwholesome crowding. There is a very pressing need of small rooms that can not possibly be supplied in the present building, unless by adding more stories and providing an elevator. We have one large room now used as a lecture room into which our more elementary classes might possibly overflow, but this is our only resource. Moreover our older rooms are worn by thirty years of continual use, and are not attractive to students seeking the best place for the study of chemistry. A new building in keeping with the position of the University would cost not less than two hundred thousand dollars, and a fund of an equal amount would be required to cover the running expenses. While we fully understand that the present resources of the University are wholly inadequate to provide for this need, we feel it our duty to state the position plainly in hopes that some generous benefactor may be led to give this direction to great munificence.

If a new laboratory built after modern patterns can not be had, the possibility of additional stories on the present building, above alluded to, ought to be seriously considered. This scheme would have the advantage of saving our present plant, and would cost far less than a wholly new building, but whether the addition could be made architecturally harmonious the writer is not capable of judging. He does know, however, that the foundation and walls are abundantly strong enough to bear the increased weight. Of course such a scheme would involve the expense of ample elevators.

The new lecture room into which the former Mineralogical Museum was converted — without serious alteration, and at small cost — is capable of holding comfortably about 450 men. But the imperative need of large class rooms in many departments of the University has led to the crowding into this room of larger classes than can be properly accommodated, and suggested a plan of increasing the seating capacity by enlarging the gallery. In such a case as this the ventilation of the room ought to be a primary consideration, and, assuming that the additional seats can be obtained at a moderate cost, the means of ventilation are not adequate for a larger audience

than the present seating capacity permits, and further it is impossible so to control the atmosphere of a chemical laboratory that it will not at times be offensive to literary classes. Moreover this room which is well adapted for a working room, is the only available space we have left for our increasing classes, and to take any measures tending to appropriate it to other uses would be an injury to the department. Besides all this the jar and dust incident to the frequent incoming and outgoing of large classes is incompatible with delicate chemical work.

The ample accommodation furnished to the mineralogical classes by the new wing of the University Museum has been greatly enjoyed during the past year, and it gives the Director great pleasure to report that a munificent gift of valuable gems has been made to the Mineralogical Museum by Mr. James A. Garland, of New York. This gift has very greatly added to the interest in the collection, taken by the students of the University, as well as by the community at large; and the Instructor in Mineralogy has cultivated this interest by frequent cabinet lectures during the hours when the Museum is open to the public. The New Museum was formally opened on June 8th; but a very large amount of explanatory labelling remains to be done before the full value of the collection to the students of mineralogy can be realized. Such a large and valuable collection, as this has become, demands the constant services of an intelligent and efficient curator.

During the past year there have been no important changes in the teaching force and in the courses of instruction either in the chemical laboratory or in the mineralogical museum. The number of students in our working rooms was larger than ever before, and all the courses were successfully completed. As the details in regard to these courses are given in the Report of the Dean of the Faculty of Arts and Sciences, it is unnecessary to repeat them here. The same is true in regard to the scientific work, as a list of all the papers published from the Laboratory is given in the annual catalogue of University publications compiled by the Assistant Librarian.

JOSIAH P. COOKE, *Director.*

THE JEFFERSON PHYSICAL LABORATORY.

To the President of the University:

Sir, — More enlightened views of the advantages of a thorough scientific training, as preparation for the new professions and for many of the older professions, are beginning to be manifested by the increased attendance on the laboratory courses in Physics; and I believe that it is better policy to perfect the systematic courses of laboratory instruction than to offer lecture courses which may serve to attract only a momentary attention to the subject.

The growth of the laboratory courses suggests that portions of the space now devoted to cabinets of apparatus, may have to be adapted to laboratory work. Experience proves that the large Physical Laboratory is not too commodious for the department.

The following table gives the number of students in 1891–92 and in 1892–93.

	1891-92.	1892-93.
Physics 1	65	65
Physics *B*	68	94
Physics *C*	64	87
Physics 3	31	39
Physics 4	8	12
Physics 5	4	2
Physics 6	10	11
Physics 7	4	6
Physics 9	6	4
Physics 10	2	0
Physics 20*a*	1	4
Physics 20*c*	2	0
	265	324

The Summer School was attended by 37 students, of which number 18 took the lower course and 19 the higher. It is gratifying to notice the increase of students who took the higher Summer Course. This increase was due to the personal efforts of the instructor, Mr. W. C. Sabine, who sent out a circular giving information in regard to it, and who has succeeded in making the course valuable to teachers. The teachers who attended the Summer School will serve at various centres in the West to disseminate a knowledge of the Harvard methods of laboratory work; and in my opinion the summer schools in Physics should be continued and encouraged.

The west end of the Laboratory was especially designed for the work of Graduate students and for physical research: it has been

found well adapted for these objects, and students who have lately returned from Germany inform me that there is no laboratory in Europe which is now superior to the Jefferson Physical Laboratory in regard to material equipment. It was thought highly desirable, when the Laboratory was building, that all iron pipes should be excluded from the west end of the building in order to avoid magnetic disturbances as far as possible; and this was done, although the cost of the building was greatly increased by this exclusion of iron materials. It has been discovered, however, that the electric railroad on North Avenue, which is less than six hundred feet distant from the Laboratory introduces a magnetic disturbance which is greater than the local effect of iron pipes. This magnetic effect is due to the change of the magnetic field produced by the current in the expansion or contraction of this field when the electric car passes along North Avenue. The disturbance can make a difference of two per cent. in many electrical measurements. It is useless therefore to erect a wooden magnetic observatory within the area embraced between Oxford Street and North Avenue.

In the Elective Pamphlet, issued last May, a knowledge of the differential and integral calculus was required of those who should elect Physics 4. During the present term, there are twelve men in this Elective — one of the higher courses in the Laboratory — who come with a knowledge of the differential and integral calculus. To the mind of the director, nothing marks the intellectual growth of students of Physical Science in this University more strongly than this fact.

A great Physical Laboratory should aim to form a school of young Physicists, and it is believed that the conditions for forming such a school in Cambridge are now excellent. The department takes pride in claiming Mr. D. Shea, now Professor in the Illinois State University, as one of its students. Mr. Shea's work accomplished in Berlin has been given the place of honor in the Annalen der Physik und Chemie.[1]

Mr. W. C. Sabine, now instructor in Physics, has perfected various forms of scientific apparatus which have greatly added to the efficiency of the Laboratory Courses. Among these forms is a new spectroscope for elementary instruction in Light, by means of which measurements are possible which formerly could be made only with very expensive instruments.

Mr. A. L. Clough worked with Professor Hall upon the variations of the so-called Hall effect in several substances with change of

[1] Zur brechung und Dispersion des lichtes durch metallprism. *Ann. der Physik und Chemie*, No. 10, 1892.

temperature. The following were the most important results obtained. The Hall effect in nickel increases with the rise of temperature until a point somewhat above 200° C is reached, after which it decreases so rapidly that near 300° C comparatively little remains. Since the magnetic permeability of nickel is known to suffer like changes at like temperature, it appears that the Hall effect is closely connected with the magnetic property in this metal. In untempered cold rolled steel the Hall effect increased with the rise of the temperature through the range covered by the experiments. In this respect its permeability resembles that of steel. During the second half of the year 1891–92, Mr. A. W. Slocum and Professor Hall were engaged upon experiments preliminary to the trial of a new method for determining the thermal conductivity of metals. The work was interrupted by the departure of Mr. Slocum for Europe, but it is the intention of Professor Hall to resume the experiments during the latter part of the current academic year. When the amount of elementary teaching which Professor Hall performs is considered, his zeal in the laborious work of research is remarkable. The main work of instruction in Mathematical Physics is done by Professor Pierce, and in this constantly advancing subject the instructor is obliged even in his daily work to engage in research.

During the first half of the year, evening conferences were held at which the contents of scientific periodicals were commented upon and various subjects for investigation were discussed. These conferences can be made useful in promoting enthusiasm for research. The Director published during the year in the *American Journal of Science*, a description of an instrument for studying change of phase in electric circuits. He also published in the *London Philosophical Magazine* a paper on "Magnetic Waves." He proposed during the year to test the question of the existence of displacement currents in dielectrics, by a new method. The actual experiments were not performed, but the apparatus will be used for experiments in this subject during the latter part of the current academic year. The question of the existence of displacement currents in dielectrics has an important bearing on the new Electromagnetic theory of light. A paper on oscillatory discharges of electricity in a magnetic field is still uncompleted. The scientific work of the Director during the past two years has been repeated this year by Klemencic in the University of Gratz, V. B. Bjerknes of the University of Christiana, and Professor Thomson of the University of Cambridge, and the results of the Director have been confirmed.

The best conditions for research in the Physical Laboratory, in my opinion, would be gained by giving each of the Professors in the

department a skilled assistant who could carry out the ideas presented to him. The present force of assistants cannot be used for the work of investigation, since all their time and energy must be devoted to elementary instruction. The Joseph Lovering fund for original research at present amounts to $7720. The income of this hardly suffices to pay for the necessary material for a limited investigation, and is not sufficient to enable the director to employ an assistant for the work of research.

JOHN TROWBRIDGE, *Director*.

THE OBSERVATORY.

To the President of the University: —

Sir, — By the death of Mr. George B. Clark of the firm of Messrs. Alvan Clark & Sons, the Observatory has lost a friend of many years standing. To his genius for mechanical devices, indomitable perseverance, and devotion to the interests of the Observatory, we are indebted for the success of many of our most useful instruments.

The most important matters to be considered in the following report are, the permanent establishment of an observing station in South America, where the difficulties depending on the unsteadiness of the air are almost entirely avoided; the construction of a new brick building, by which the photographs and manuscripts of the Observatory will be securely protected from the danger of fire; the approaching completion of the Bruce photographic telescope, and the observation by a variety of methods of the new star in Auriga.

Observatory Instruments.

East Equatorial. — While the photometric observation of the eclipses of Jupiter's satellites, and various kinds of micrometric work, as described below, continue to be carried on with this instrument, its principal use in recent years, like that of the West Equatorial, has become the systematic observation of variable stars. The stars chiefly observed are seventeen circumpolar variables of long period, but about seventy others also receive attention. The objects contemplated are, the formation of lists of comparison stars, proceeding by intervals of about half a magnitude from the maximum of each variable to its minimum or to the faintest star visible, as the case may be; the determination of the magnitude of each comparison star, at least by means of comparisons between it and others, and

when practicable, by photometric methods; and finally, the observation of the variable star itself at intervals of two weeks or less. The lists of comparison stars are usually first selected by means of the West Equatorial, and revised by means of the larger instrument. The variable stars themselves are observed with the West Equatorial until they become too faint to be seen in it, when further observations of them are made with the East Equatorial. It is much to be desired that some observer, having a still larger instrument at his disposal, should systematically observe the stars which become too faint for the East Equatorial, until they have recovered sufficient brightness to make them again visible here.

The observations with the East Equatorial were made by Mr. O. C. Wendell, except 11 of the 29 eclipses of Jupiter's satellites measured photometrically during the year, which were made by the Director. The total number of eclipses photometrically observed since 1877 is now 500. More than 1000 observations of variable stars were made in pursuance of the plan above described, and lists of comparison stars for 37 variables were selected or revised. The new star in Auriga was compared with others 250 times, and was observed photometrically on 40 nights, during which 1344 separate settings of the photometer were made. The place of the new star was micrometrically observed on 3 nights, and several of the stars used in comparisons with it were also occasionally observed both with the photometer and the micrometer. The wedge photometer was used in 18 series of observations, comprising 1422 settings, for determining the brightness of 474 stars, selected from the Durchmusterung. Comet 1891 V. was observed for position on 5 nights; Comet 1891 II. on 4; and the comets discovered by Swift, Denning, Brooks, and Barnard, were similarly observed on 11, 2, 2, and 1 nights respectively. A number of miscellaneous observations, mostly relating to the stars near variables, were also made.

Meridian Circle. — The reduction of the observations made with this instrument by Professor William A. Rogers continues under his supervision. During the year the catalogue of the zone between the declinations $+49°\,50'$ and $55°\,10'$ has been printed, and it is now ready for distribution. This work includes an elaborate introduction by Professor Rogers. The manuscript was sent to Germany for publication in accordance with an arrangement for coöperation between the Observatory and the Astronomische Gesellschaft, which also publishes an edition of this catalogue as a part of its general catalogue of stars to the ninth magnitude. The printing of another volume relating to the zone observations has made much progress, as men-

tioned below in describing the publications, and the journal of the observations has been carefully checked and in part recomputed during the year. It will occupy two additional volumes, which are expected to be ready for the printer in a few months.

The observations of the southern zone between the declinations $-9°\ 50'$ and $-14°\ 10'$ were so far completed during the spring by Professor Searle, with the assistance of Mr. Dunne, that the observations still to be made are only such as will be shown to be necessary by the progress of the reductions. Observations have therefore been suspended for the present. The number of nights of observation for the months of November, 1891, to May, 1892, inclusive, was 50; the total number of observations was 2132, of which 100 relate to circumpolar stars, 321 to fundamental stars, 1680 to zone stars, 29 to variable stars, and 2 to stars incidentally observed. The total number of observations made since the work began in April, 1888, is 25,922, and the corresponding numbers for the five classes of stars just mentioned are 961, 3329, 20,966, 128, and 538; the total number of nights of observation was 490. The work of reduction continues to make good progress. At present, it is directed chiefly to the completion of the reduction of the fundamental stars. An examination of their residuals for the first year has made evident a systematic variation dependent upon the declination of the stars, which it will be desirable to investigate for the whole series of observations.

Meridian Photometer. — Observations of the light of the southern stars with the meridian photometer were completed by Mr. Bailey on May 6, 1891. These measures give the brightness of about eight thousand stars south of $-30°$ and continue the work contained in Volumes XIV. and XXIV. of the Annals, to the South Pole. The reduction of these observations is now approaching completion. Much attention has been paid to the discussion of the atmospheric absorption as many of the polar stars were observed at a large zenith distance. On the return of the photometer to Cambridge, preparations were made to resume work with it here. It was accordingly mounted in the west wing of the main building, so that the observer and recorder should be in a warm room in winter, instead of being exposed to the cold. Observations began November 3, 1891, and since then 105 series have been obtained, including 33,792 separate photometric comparisons; 36 of these series, including 10,216 comparisons, have been made by Mr. Bailey, the remainder were made by the Director. The principal work undertaken has been the reobservation of the stars of the Harvard Photometry. It is now about

ten years since the completion of the observations contained in that work. The list for observation also includes a number of stars which are slightly fainter than the sixth magnitude, and such of the comparison stars for variables employed in the observations made with the East Equatorial as are brighter than the tenth magnitude. Numerous observations are also made of stars near the northern and southern horizon, to determine the atmospheric absorption, the southern stars also serving to connect the scale of magnitude with that derived from the observations in Peru. A large part of the reduction and discussion of these observations has already been made. On 16 nights measures were made of the new star in Auriga, and of 25 stars suitable for comparison with it. The numbers of settings in these cases were 600 and 532 respectively.

West Equatorial. — The principal observer with this instrument has been Mr. W. M. Reed. Mr. T. E. Powe has also made many observations with it. Mr. Reed has observed on 109 nights. In pursuance of the system above described for the observation of variable stars of long period, he has selected 285 comparison stars, and has made 803 observations of the brightness of stars to be compared with variables of long period; 458 observations of such variables themselves, and 62 of variables of short period. He has also used the prismatic photometer mentioned in the last report, as yet chiefly in the observations required for determining its constant. The new star in Auriga has also been frequently observed; 116 observations, involving 277 comparisons, have been made by Mr. Reed, who has also made 118 observations of the corresponding comparison stars. Mr. Powe has made 50 observations of the new star, and 54 of the comparison stars; also 249 and 388 observations respectively of variable stars of long and of short period, and 57 observations of stars for comparison with variables of long period. Mr. Reed, aided by Mr. Powe, has observed a number of auroras, and has investigated the parallax of two auroras by combining his observations with others made at Blue Hill and at Providence.

Henry Draper Memorial.

The number of photographs taken with the 8 inch Draper telescope is 2777. The number taken in Peru with the Bache telescope is nearly two thousand, of which 601 have been received in Cambridge. The examination of these plates has as usual led to the discovery of a large number of interesting objects. Ten variable stars, U Delphini, S Pegasi, T Aquarii, R Crateris, R Carinae, S Canis Minoris,

S Carinae, R Ophiuchi, X Ophiuchi and Espin's variable star in Auriga in addition to the thirty-seven previously announced have the hydrogen lines bright in their spectra. Seven new variable stars have been discovered this year by means of this property. The number of stars of the fifth type has been increased by eight, making the total number now known of these objects, 45. The hydrogen line F was shown to be bright in the spectra of six stars in addition to those already known. Photographs have been obtained of the spectra of eight planetary nebulae showing bright lines. The spectrum of the nebula surrounding 30 Doradus is unlike that of other gaseous nebulae. The star A. G. C. 20,937 has a somewhat similar spectrum. Five stars have been shown to have spectra of the fourth type. All of these peculiarities have been detected by Mrs. Fleming except in the cases of one of the known variables, one of the planetary nebulae, and two of the stars of the fourth type, which were found by Mr. A. E. Douglass, in Peru, before the plates were sent to Cambridge.

The amount of valuable material accumulated with these instruments is continually increasing, and has proved useful in many cases in studying the history of newly discovered objects. The brightness for several years past of stars suspected of variability has been furnished to various astronomers. Plates have been sent to the Lick and Amherst Observatories and to the Smithsonian Institution for special investigations. From one of them a new variable star in Aries was discovered by Professor Schaeberle. It is hoped that this use of our plates may increase in the future. A large number of photographs were taken of the new star in Auriga. An examination of the older photographs showed that the region containing it had been photographed eighteen times from November 3, 1885 to November 2, 1891, and that it was then apparently fainter than the thirteenth magnitude. It appeared upon five plates taken between December 16, 1891, and January 31, 1892. After its discovery it was photographed on sixty-five chart plates and thirty-six spectrum plates, until April 6, when it became too faint to be visible in the encroaching twilight. All of these plates have been carefully studied and measured. 21 charts and 15 spectrum plates of this object have been taken since its reappearance in September, 1892. On these last plates, the spectrum is shown to resemble that of a planetary nebula.

Many photographs of the lunar eclipse of November 15, 1891, were taken both at Cambridge and at the Boyden observing station near Arequipa, Peru. The examination of these photographs for the detection of a possible lunar satellite led only to a negative result.

The number of photographs taken with the 11 inch Draper telescope is 996. They include 372 spectra of β Aurigae to determine the law of periodic doubling of the lines. 244 of these images show the lines double so that the separation can be measured. In like manner 208 spectra of ζ Ursae Majoris have been photographed, and in 49 of them the lines are separated widely enough to be measured. A similar study has been made of the new star in Auriga, of β Lyrae, of 11 Monocerotis, and of some other stars having peculiar spectra. Photographic charts have also been obtained of numerous variable stars, stars having large proper motion, clusters and stars having peculiar spectra to determine their parallax if it is perceptible.

Boyden Department.

In establishing the Fund that bears his name, Mr. Boyden desired to secure an astronomical station where the effects due to the atmosphere would be greatly diminished. This has now been successfully accomplished in the Harvard Station at Arequipa, Peru, where the effect of the air is no longer as heretofore the principal obstacle to progress in astronomy. Instead of this the limit is now the size and excellence of our instruments. A great advance would probably be made in our knowledge of the planets, and perhaps of the fixed stars, if a telescope of the largest size could be mounted under such favorable conditions.

This station has continued in charge of Professor W. H. Pickering. The instruments chiefly employed have been the 13 inch telescope, the 8 inch Bache telescope, and a photographic camera having an aperture of $2\frac{1}{2}$ inches. The first of these instruments has been largely devoted to visual work, for which unusual advantages are afforded by the transparency and steadiness of the air at this station. Many interesting results have been derived from the observations made of the Moon and various planets. The observations of the Moon relate to Plato and other regions, which have been carefully examined, and also to the systems of bright streaks visible at full Moon. The markings of Mercury have been studied, and this investigation appears to confirm Schiaparelli's view that the rotation of Mercury on its axis occupies the same time as its revolution in its orbit. Although this planet appears to have no atmosphere, the markings upon it are very faint compared with those upon the Moon. Venus was micrometrically studied near its inferior conjunction with regard to its diameter, polar compression, and the refractive effect of its atmosphere. No permanent markings could be detected. An extensive series of observations was made upon Mars. The relative positions of 92

points upon its surface were determined by the micrometer. More than 40 minute black points were discovered, provisionally designated as lakes. The polar compression of the planet was measured, and appeared to be greater than that indicated by theory, which may be due to an excess of cloud in the equatorial regions. The presence of the dark and narrow streaks called canals by Schiaparelli has been confirmed and various measurements of them have been made. The clouds projecting beyond the limb and terminator, discovered at the Lick Observatory, have been studied, and their height has been found to be at least twenty miles. The relative colors of different portions of the planet have been minutely observed. Two large dark blue areas have been detected, and other portions have been noticed to be subject to gradual changes of color.

Many new double stars were found in a survey of the heavens south of $-30°$, between 12^h and 18^h. The August occultation of Jupiter was observed both visually and photographically, as was also the new star in Auriga, and Swift's comet, the photographs of which showed detail not noticeable in the visual observations.

With the camera, having the aperature $2\frac{1}{2}$ inches, very satisfactory photographs have been obtained of the Magellanic clouds, showing their composition to be partly of stars and partly of nebulous matter; also the spiral structure of the larger of the two clouds.

Meteorological observations are regularly carried on. Stations have been established at Mollendo, 100 feet above sea level, at La Joya, the elevation of which is 4150 feet, at the observing station, 8060 feet high, at the Chachani Ravine, 16,650 feet high, where numerous miscellaneous observations have been made. Notwithstanding the great height of the last named station, it can be reached by a mule path, and a hut has been erected where the observers can pass the night. A survey of the Arequipa valley and neighboring mountains has been made, depending on two separate base lines. The heights of the mountains have been measured, and in some cases the result has been checked by a mercurial barometer.

The Bruce Photographic Telescope.

This instrument, which if successful will be in many respects the most powerful in the world, is now rapidly approaching completion. The eight surfaces of its objective have been ground and polished so that it could be tested on a star. The results were satisfactory, although of course no definite opinion can be formed until the final corrections are applied. The focal length proved to be that desired within half of one per cent. Plans have been made and the founda-

tions laid for a one story brick building with a sliding roof in which it will be erected during its trial in Cambridge. After this, it is proposed to send it to the Arequipa station in Peru.

Photographs have been taken with the transit photometer on 192 evenings, and when clear, throughout the entire night. With this instrument images are obtained of all stars brighter than the sixth magnitude which cross the meridian during the night. The value of this work was illustrated when the new star in Auriga was discovered in February, 1892. It then appeared that this object had been photographed on twelve nights since December 10, 1891, while no trace of it was visible on thirteen plates covering this region and taken before December 2, 1891. The only knowledge that exists of its changes of light during the six weeks in which it remained undiscovered is furnished by these photographs and those taken with the 8 inch telescopes. It was also photographed with the transit photometer on twelve nights after its discovery. Of the forty thousand standard stars of the tenth magnitude, about eight thousand have been selected by Miss E. F. Leland during the past year, making eleven thousand in all.

Miscellaneous.

Library. — The library of the Observatory has been increased during the year by the addition of 169 volumes and 901 pamphlets. The total numbers of volumes and pamphlets on November 1, 1892, were 7198 and 8745, respectively.

As the station at Arequipa, Peru, will probably be maintained permanently, it is desirable that it should have a library of its own. Owing to its remoteness, copies of astronomical or meteorological works sent there direct, or through this Observatory, will be gratefully received and will prove of much value.

Time Service. — The action of the U. S. Naval Observatory in furnishing the public with time signals of moderate accuracy has proved as injurious to this Observatory as to many others. It has rendered it advisable however to abandon the Harvard system of time signals. This was done with less reluctance since the continual increase in the number of electric wires rendered it every year more difficult to maintain continuous service. The danger of accident or fire from the powerful currents transmitted by other lines was insufficiently compensated by the pecuniary profit derived from the sale of our time signals. The principal benefit to the Observatory arose from the appreciation by the public of the service rendered in furnishing time signals of the highest attainable accuracy.

Telegraphic Announcements. — The distribution of telegraphic announcements of discovery has been continued as in past years, although Mr. Ritchie has resigned his position as Assistant in the Observatory. Astronomers are requested to continue to send to this Observatory announcements of their discoveries for transmission to the observatories of Europe and America.

Buildings and Grounds. — The urgent need by the Observatory of a fire-proof building to hold its large collection of photographic plates, has been pointed out in several successive reports. This want has at last been supplied by the following liberal contributions of the friends of the Observatory: —

A friend (Boston)	$500	Lawrence, Samuel C.	$100
A friend (New York)	500	Lee, Henry	500
Ames, Oakes A.	100	Lowell, John	100
Beebe, E Pierson	100	Mason, W. Powell	200
Bradlee, Miss Helen C.	100	Nash, Nathaniel C.	100
Bremer, John L.	200	Paine, Robert Treat	300
Brimmer, Martin	300	Parkman, George F.	500
Coolidge, J. Randolph	100	Peabody, F. H.	500
Curtis, Charles P.	100	Peabody, Oliver W.	100
Edmands, J. Rayner	200	Pickering, Edward C.	500
Endicott, William, Jr.	500	Salisbury, Stephen	100
Forbes, John M.	200	Shattuck, George O.	100
Gardner, Mrs. John L.	1000	Thayer Brothers	200
Gardner, John L.	500	Warren, Samuel D.	200
Hemenway, Augustus	100	Weld, William F.	100
Hemenway, Mrs. Mary	500	Wheelwright, J. W.	100
Hudson, John E.	100		
Hunnewell, H. H.	200		$9,200
Kimball, David P.	200		

About two thirds of the total amount required has thus been provided. Unless future subscriptions are received the remainder must be taken from the sum available for the current expenses of the Observatory. A brick building, thirty by sixty feet, and having two stories and a basement has been erected and is now nearly completed. It will furnish a permanent storehouse for the glass photographs and the more valuable manuscripts of the Observatory, and also room for their examination and discussion.

The inadequate accommodation afforded by the East Wing of the Observatory, which is used as a dwelling house by the Director, has long been recognized. An arrangement has been made during the past year by which the amount deducted from the salary of the Director on account of his occupancy of the house is hereafter to be

applied to the expenses of the Observatory instead of to those of the University at large. An extension has been made, at the expense of the Director, by which the accommodation for visiting astronomers and the rooms for entertaining them will be greatly improved. A large amount of grading has been done in connection with these buildings, and the hollow formed by the old entrance from Concord Avenue has been filled.

Publications. — Volume XV., Part II. of the Annals of the Observatory has been completed by the printing of the introduction. This work contains the zone catalogue of stars between the declinations $+49° 50'$ and $+55° 10'$, and concludes Volume XV. It will soon be distributed. Volume XIX., Part II., is in type as far as page 314. It contains a discussion of the zodiacal light by Professor Searle, and a determination of the atmospheric absorption by means of photography. Volume XXV. is in type as far as page 356. It contains a comparison of the places of stars in the zone $+49° 50'$ to $+55° 10'$ as determined by Professor Rogers, with the places of the same stars in previous catalogues, the results thus obtained for proper motion, and the separate results in right ascension and declination derived from the successive observations of the zone stars. Volumes XXIII., Part II., XXVI., Part II. and XXVIII., are not yet undertaken. Volume XXIX. will consist of comparatively brief, disconnected articles, like Volume XVIII. Three numbers of this volume are in type. They relate respectively to meteorological observations by Messrs. A. Lawrence Rotch and Winslow Upton at the time of the total solar eclipse of January 1, 1889, which they observed at Willows, California; to the determination of the longitude of Smith College, made in 1888, by Miss Mary E. Byrd and Professor Mary W. Whitney; and to photometric observations of asteroids, by Mr. Henry M. Parkhurst, in continuation of his previous article in Volume XVIII. upon the same subject. The fourth number of Volume XXIX. is also by Mr. Parkhurst, and relates to his observations of variable stars. Twenty pages of this article are in type, extending to page 111 of the entire volume. Volume XXX., Part III., containing meteorological observations of the Blue Hill Observatory, has been printed and will soon be distributed; Part IV. is required to complete the volume. Volume XXXI., Part I. has been printed and will soon be distributed; Part II. is ready for printing. This volume contains observations and essays by members of the New England Meteorological Society, during the years 1890 and 1891. Volume XL., Part I., has been printed and is soon to be distributed. It continues the publication of the work of the Blue Hill Meteorological

Observatory from Volumes XX. and XXX., and contains observations made during the year 1891. The volumes bearing numbers between XXXI. and XL. have not yet been undertaken.

Besides the volumes of Annals above mentioned, the following publications have appeared during the year: —

Forty-sixth Annual Report of the Director of the Astronomical Observatory of Harvard College. Cambridge, 1891.

A Large Southern Telescope. Circular describing the advantages of establishing such an instrument at Arequipa, Peru.

Astronomical Possibilities at considerable altitudes. By W. H. Pickering. Astronomische Nachrichten, cxxix. 97. Reprinted in the Observatory, xv. 283.

An investigation of the systems of Bright Streaks visible upon the Full Moon. By W. H. Pickering. Astronomische Nachrichten, cxxx. 225.

Are there at present Active Volcanoes upon the Moon? By W. H. Pickering. The Observatory, xv. 250.

The Mountain Station of the Harvard College Observatory. By W. H. Pickering. Astronomy and Astro-Physics, xi. 353.

The Boyden Station of the Harvard College Observatory. By W. H. Pickering. Astronomy and Astro-Physics, xi. 357.

Colors Exhibited by the Planet Mars. By W. H. Pickering. Astronomy and Astro-Physics, xi. 449.

The Earthquake for February 23, 1892. By W. H. Pickering. Astronomy and Astro-Physics, xi. 470.

Colors Exhibited by the Planet Mars. By W. H. Pickering. Astronomy and Astro-Physics, xi. 545.

The Planet Saturn and its Satellites. By W. H. Pickering. Astronomy and Astro-Physics, xi. 649.

Mars. By W. H. Pickering. Astronomy and Astro-Physics, xi. 668.

The Glacial Period and the Planet Mars. By W. H. Pickering. Knowledge, xv. 113.

Can a Planet absorb its Oceans without having its Surface Temperature lowered? By W. H. Pickering. Knowledge, xv. 193.

Observations of Comet 1891 V. By O. C. Wendell. Astronomical Journal, xi. 56.

Second series of Observations of Comet 1891 V. By O. C. Wendell. Astronomical Journal, xi. 61.

Orbit of Comet 1891 IV. By O. C. Wendell. Astronomy and Astro-Physics, xi. 87.

Ephemeris of Comet 1891 IV., for March. By O. C. Wendell. Astronomy and Astro-Physics, xi. 251.

Observations of Comet a 1892. By O. C. Wendell. Astronomical Journal, xi. 158.

Orbit of Comet a 1892. By O. C. Wendell. Astronomy and Astro-Physics, xi. 443.

Observations of Comets 1891 II. and 1891 V. By O. C. Wendell. Astronomische Nachrichten, cxxx. 45; also Astronomical Journal, xi. 191.

Observations of Comets a 1892 and c 1892. By O. C. Wendell. Astronomical Journal, xi. 191.

Second Orbit of Comet a 1892. By O. C. Wendell. Astronomy and Astro-Physics, xi. 536.

Ephemeris of Comet a 1892 for August. By O. C. Wendell. Astronomy and Astro-Physics, xi. 625.

Second series of Observations of Comet a 1892. Also Observations of Comet c 1892. By O. C. Wendell. Astronomical Journal, xii. 94.

New Variable Stars in the Southern Sky. By M. Fleming. Astronomische Nachrichten, cxxx. 125.

Stars having Peculiar Spectra. By M. Fleming. Astronomy and Astro-Physics, xi. 418.

Astronomical Expedition to Peru. By M. Fleming. Publications of the Astronomical Society of the Pacific, No. 22, 58.

Distribution of Energy in Stellar Spectra. By Edward C. Pickering. Astronomische Nachrichten, cxxviii. 377. Reprinted in Astronomy and Astro-Physics xi. 22.

On the New Star in Auriga. By Edward C. Pickering. Astronomische Nachrichten, cxxix. 111.

A New Variable Star in Aries. By Edward C. Pickering. Astronomische Nachrichten, cxxxi. 62.

The Objective Prism. By Edward C. Pickering. Astronomy and Astro-Physics, xi. 199.

The New Star in Auriga. By Edward C. Pickering. Astronomy and Astro-Physics, xi. 228.

A change in the Spectrum of Nova Aurigae. By Edward C. Pickering. Astronomy and Astro-Physics, xi. 330.

Nova Aurigae. By Edward C. Pickering. Astronomy and Astro-Physics, xi. 417.

Nova Aurigae. By Edward C. Pickering. Astronomy and Astro-Physics, xi. 750.

A New Variable Star. By Edward C. Pickering. Astronomy and Astro-Physics, xi. 752.

EDWARD C. PICKERING, *Director*.

THE MUSEUM OF COMPARATIVE ZOÖLOGY.

To the President and Fellows of Harvard College: —

During the past year the usual courses of instruction have been given at the Museums in Zoölogy by Professor Mark, Dr. Slade, and Mr. Davenport, assisted in the laboratory work by Messrs. W. M. Woodworth, W. S. Nickerson, J. C. Hubbard, and H. M. Kelly.

Professors Whitney, Shaler, Davis, and Wolff gave courses of instruction in Geology, Palaeontology, Physical Geography, and Petrography. Messrs. Harris, Dodge, Kummel, J. B. Woodworth, R. DeC. Ward, Westgate, and R. T. Jackson were the Assistants in the undergraduate instruction of the Geological Department.

The Reports upon the instruction given in Natural History at the Museum show how little of the work of our Professors is devoted to fostering original research or advanced studies. The fact is, that the undergraduate classes have become so large, and their demands upon the time of the Professors so pressing, that the function of the latter of encouraging, as University Professors, the attendance of advanced students at Harvard is reduced to a minimum. In fact, the time which our Professors give to elementary teaching is entirely out of proportion to that allowed them for higher instruction. Thus the facilities for original investigation which might be attained at the Museum, and for which it was primarily intended, have been thrown away for many years, owing to the inability of the authorities to appoint men whose duties should lie in this direction.

For more than twenty years it has been my aim gradually to provide room and materials for such a purpose, and it is not encouraging to find that the time and means thus spent have been so unproductive of better results.

It is not the province of the Museum to provide the necessary instructors, — that belongs to the University; but it is time that the authorities of the Museum should protest against the ascendency of the undergraduate instruction, which threatens to overcome the higher purposes of the institution, and to render it comparatively useless for the progress of science and for the more advanced studies. It is time that the original aim of the Museum should be reasserted, and its highest usefulness be made available. The appointment by the University of half a dozen men to the Natural History Department, to carry on original investigation themselves, and to direct the work of advanced students, would go far toward placing the Museum on a more active plane. We need teachers in Entomology, in Vertebrate and Invertebrate Zoölogy and Palaeontogy, as well as in Marine Zoölogy; additional assistants to the Professors and Instructors already teaching are needed to fill the gaps in our advanced instruction. One of the first requisites in carrying out such plans is the removal of the undergraduate instruction to a new part of the University Museum, the space for which remains in the vacant southwest corner of the Oxford Street façade of the Museum.

It is a surprise to me to find how little seems to be known in this country regarding the publications of the Museum, and the facilities

for teaching in our Natural History Laboratories. In a recent circular of information issued by the Bureau of Education,[1] the account given of the Museum Laboratories is very unsatisfactory. This, however, is explained from the unscientific method of preparation of the circular. Our Annual Reports have evidently not been consulted, and the mere sending out of circulars and blanks to be filled up can never supply the requisite data for the compilation of an authoritative report such as this circular purports to be. The author who supposes that such loose methods of obtaining information can take the place of careful reference to official reports, or of personal acquaintance with a subject, shows his ignorance of the most rudimentary principles of attacking a scientific problem.

Considerable correspondence has taken place with the officials of the Educational Exhibits and of the Fishery Exhibits of the Columbian Exposition in regard to a representation of the Museum at Chicago. Instructing as it might be to the public to send photographs and a description of the institution as it now stands, this would entail a very considerable outlay both of time and money, neither of which is at the disposal of the officers of the Museum for such a purpose.

The Newport Marine Laboratory has, as usual, been placed at the disposal of the advanced students in Zoölogy, and its tables have been occupied by Messrs. Dåvenport, Ward, Kelly, Kofoid, Mayer, Weysse, Lucas, Woodworth, and Gerould, who were occupied during their stay in collecting material for their special investigations. The work of the students was principally devoted to the embryology of Mollusks, of Acalephs, and of Echinoderms. Mr. Woodworth was kind enough in my absence to put the Laboratory in working order for the opening of the season.

We have to thank Colonel Marshall McDonald, United States Fish Commissioner, for facilities granted our students in connection with their work at the Fish Commission Station at Wood's Holl.

In connection with the Newport Laboratory, it is a pleasure to me to report that the Museum has received from Major Thedore K. Gibbs, of Newport, the sum of $5000 to establish the Virginia Barret Gibbs Scholarship Fund, the income of which is to be devoted to assisting students interested in the study of Marine Zoölogy. The conditions which regulate the use of the income of this Scholarship are similar to those of the Tyndall Fellowship, and are given in the Appendix (p. 223).

[1] Bureau of Education Circular of Information No 9, 1891. Biological Teaching in the Colleges of the United States, by John P. Campbell, A.B., Ph.D. (Johns Hopkins), Professor of Biology in the University of Georgia. Washington, Government Printing Office, 1891.

But little change has taken place in any of the Exhibition Rooms now open to the public. The model of the East Coast of the United States has been placed in the Geographical Room, but unfortunately we have been unable to make any progress in its final arrangement, or in that of the Geological Exhibition Room. Extensive changes have been undertaken in the North American Faunal Room to accomodate the Greene Smith Collection of Birds.

We have continued to fill a few of the gaps existing in our collections by purchases, mainly from Ward. Our greatest desiderata are now in the African Room, where we should have, in order to make the collection more characteristic, a good Hippopotamus, a Giraffe, and a few additional Antelopes. We have devoted one of the wall cases of that room to the Fauna of Madagascar. All the Lemurs and other characteristic Madagascar Mammals, as well as the few Madagascar Birds formerly in our African Faunal Collection, have now been placed in the cases devoted to the Fauna of Madagascar. It is astonishing to see how the peculiar mammalian fauna of that island gains in distinctness, now that it is separated from its African surroundings. This and the Australian faunal exhibits show at a glance the value of such an arrangement in our Museum.

The rooms containing the Quaternary Pampas Vertebrate Fossils, and a few Tertiary Mammals, are now open to the public. No more interesting exhibit could be made than by supplementing what has already been placed on exhibition with a series of our North American Fossil Vertebrates.

The collections of the Museum continue in good condition. I regret that Dr. Hagen's prolonged ill-health has made it impossible for him to attend to his usual duties at the Museum. Owing to our insufficient means, we have been unable to continue Professor Hyatt's salary at the Museum. He has, however, kindly consented to keep a general supervision over the palaeontological collections, which of course suffer less from want of attention than our more perishable zoölogical material. It has been found necessary to give more care to the latter, and Professor Walter Faxon has been placed in charge of the Invertebrate collections.

Professor Edmond Perrier has returned the Starfishes of the "Blake" which had been sent to him for examination, and has at the same time presented to the Museum, in behalf of the Jardin des Plantes, an extensive series of the Starfishes of the "Talisman" expedition, types of the species described by him.

Professor Alphonse Milne-Edwards has now returned the "Blake" Crustacea, with the exception of the Galatheoids, which he has kept for comparison while working up the Crustacea of the "Talisman."

Professor Verrill still has in his possession the Alcyonoids of the "Blake" expedition, and reports fair progress in their determination; he also reports that Miss Bush's paper on the Northern Atlantic Mollusks collected by the "Blake" during the expedition of 1880 is nearly ready for publication.

Professor Milne-Edward's Memoir on the Paguridae of the "Blake" is now in press. The plates have been completed, and we hope to publish it early this winter.

Considerable progress has also been made in the press-work of the Special Bulletin No. 2 of the National Museum, which will contain the Deep-sea Fishes of the "Blake," by Professor Goode and Dr. Bean.

We have received during the year an anonymous contribution, to be applied to the increase of Dr. Hagen's salary. The Corporation have kindly consented to assume a part of Dr. Hagen's salary, and charge it upon the retiring allowance fund. This has enabled me to engage Mr. Samuel Henshaw to devote some time to the care of the collection, and to superintend its use by specialists.

Among the principal additions to our collections I may mention two skins of the Wingless Rail from the Sandwich Islands, presented by the Hon. S. B. Dole of Honolulu; also, by purchase, a small collection of the principal birds of the Hawaian group, intended for the Pacific Exhibition Room.

From Ward we have obtained a magnificent alligator for the North American Room.

We have to thank Mr. Charles Wachsmuth for a number of interesting Fossil Crinoids.

The fine Rhytina skeleton presented to us by the Smithsonian Institution has been mounted by Ward and placed in the Pacific Room. We have also received from the National Museum a cast of the well known Trilobite, with it appendages, described by Mr. C. D. Walcott; and from Mr. N. P. Miller, a collection of Starfishes from Alaska. Professor Mitsukuri of the Imperial University of Tokio has presented a fine Metacrinus, and a Hyalonema from off Misaka, as well as specimens of Astacus and of the Ditrema so common in Japanese waters. From a comparison of this viviparous perch with our Californian Embiotocoid I find that it corresponds to the American genus Micrometrus of Gibbons.

Since the Hume Collection of Indian Birds was presented to the Museum we have not received from any quarter so valuable an addition to our stock as the Collection of North American Birds presented to the Museum by Mrs. Greene Smith of Peterborough, N. Y. The terms upon which the collection has been given to the

Museum are most liberal, and while the collection will remain intact as the Greene Smith Collection, it will at the same time form the bulk of our collection of North American Birds, just as the Hume Collection practically forms the Bird Collection of the Indian Room. The Greene Smith Collection is well known to ornithologists as perhaps the most complete and best mounted collection of North American Birds brought together by a private individual. The Museum is fortunate in being chosen by Mrs. Smith as the recipient of so valuable a collection, and we have to thank her most cordially for the liberal conditions which she attaches to the gift. (See Appendix, p. 224).

We have to thank the Swiss Confederation for sending us, through the Polytechnicum, a large number of topographical maps published by that goverment.

We owe to Mr. Binney the plates which accompany the last Supplement to his North American Land Shells, published in the Museum Bulletin.

The Museum has sent to Dr. Dall for examination a small collection of Tertiary Fossils from the Isthmus of Panama, sent us by Mr. F. Sousa.

The remainder of our collection of Bats has been forwarded to the Marquis Doria, at Genoa, for examination.

We have also sent out for examination small collections of Reptiles, of Sharks, and of Fishes to Messrs. Goode and Bean.

A number of Crinoids have been sent to Mr. Wachsmuth for comparison.

A number of European geologists, who attended the International Congress of Geologists, held at Washington last year, visited the Museum, and examined, as far as practicable, some of the special collections in which they were interested.

That part of the collections of the "Albatross" expedition of 1891 which is to be worked up at Cambridge has been received in excellent condition, with the exception of the Acalephs, which I fear will hardly give me the material I hoped to have at my disposal when the collections were made. Mr. Westergren, the artist who accompanied me on the "Albatross" is now at work at the Museum, and has completed a number of the plates intended to illustrate the monograph of Mr. Faxon on the Crustacea of the expedition. He will next devote his time to the Fishes and the Echini.

With few exceptions, the remaining collections are now in the hands of the specialists who have kindly consented to work them up. Short preliminary reports are already under way to illustrate the more novel types. Among them is a notice by Professor Ludwig of some

interesting Holothurians, with sketches of the species in their natural attitudes, from drawings made on board by Mr. Westergren and myself. Professor Ludwig also informs me that he has already finished the desciptive texts of three families, and that a number of plates of Holothurians are well under way. Dr. Goës has finished a notice of the gigantic Foraminifer mentioned in my Preliminary Report, and described by him as a new genus (Neusina). Both these papers will shortly be published.

Preliminary reports have also been made to Colonel McDonald, the United States Fish Commissioner, by Mr. Ridgway, on the Birds of the Galapagos, and on the small collection of Insects by Dr. Riley.

Colonel McDonald has shown the greatest interest in the collections of the "Albatross," and has given me his cordial coöperation in their final distribution. He assigned to Mr. Richard Rathbun the care of the large collections on their arrival at Washington, and the cordial thanks of the naturalists who are to work up this valuable material are due to him for the thorough manner in which he has accomplished the laborious and thankless task of forwarding from Washington to their destinations the different collections, with the consent of the Fish Commissioner.

I have myself published in the Museum Bulletin a preliminary account of the "Albatross" expedition, and have described in the Memoirs the interesting Stalked Crinoid, Calamocrinus, discovered by the "Albatross" off the Galapagos.

We have also received from Captain Tanner of the "Albatross" an interesting collection from intermediate depths from the surface to three hundred fathoms, made with the Tanner tow-net in 1892, during the exploration for a telegraphic cable from California to the Sandwich Islands. A preliminary examination of the material apparently confirms the views expressed in my preliminary report of the "Albatross" expedition regarding the bathymetrical distribution of pelagic life.

The Comatulae of the "Blake," which were in the hands of the late Dr. P. H. Carpenter, have been sent to Dr. Hartlaub of Göttingen, who will work them up in connection with those of the "Albatross." I have to thank Mr. Percy Sladen for the trouble he has taken in making the transfer to Dr. Hartlaub.

I consider myself most fortunate in having the opportunity to take charge of the publications of so interesting an expedition as that of the "Albatross" in 1891. I am sure that I represent the views of scientific men in expressing a regret that so little has thus far been published in connection with the Fish Commission work regarding the marine fauna of the east coast of the United States, considering

the splendid opportunities which have been supplied. It seems strange that Congress should not have made liberal appropriations for the working up by specialists of the magnificent collections brought together during so many years by the vessels of the Fish Commission.

A collection of Deep-sea Echini and Ophiurans, from the various deep-sea explorations sent out under the auspices of the Coast Survey, has been sent to the British Museum, in exchange for similar material given to the Museum by the "Challenger" expedition.

The Newport Marine Laboratory was fully described in my Report of 1876–77. Its efficiency has been increased by the addition, on the second floor, of a photographic room and microphotographic apparatus. An additional room of considerable size has also been attached to the building, to be used as a library and a private laboratory for myself. The unit adopted for the working space of each individual has been slightly increased in the new room, and as now planned it will be a simple proposition to erect a new Laboratory for general purposes and for special investigation by adopting the dimensions now in use for each table.

As it has gradually become apparent that each institution will eventually wish to control its own Marine Laboratory, and that no coöperation is possible between the different Universities, it has occurred to me that some expansion of the Newport Marine Laboratory might meet the demands of Harvard University. I would here say that various attempts have been made at such coöperation without success. At the time the Anderson School was abandoned, an appeal was made to the Colleges throughout the country to establish a central zoölogical station, but it received no encouragement. A second attempt was made, in connection with the late Professor Baird, to to interest the Natural History departments of the larger Universities in supporting a laboratory for research at Wood's Holl in connection with that of the Fish Commission. This likewise failed. Since then the independent action of the Johns Hopkins University, of the University of Pennsylvania, of the University of California, of the Leland Stanford Jr. University, and of others, confirms the impression that every such institution is to have its own establishment for modern zoölogical research.

But if a central laboratory is no longer to be thought of, it may be practicable to form an international association of marine laboratories, the members of which will exchange the facilities each may possess, so that all may share in the advantages of position as regards special opportunities for investigation at the different stations. Or it might be that with the help of such joint action an association might be

formed for the establishment of a marine laboratory within the tropics in the vicinity of a coral reef. While many such schemes loom up as possibilities, in view of the increased interest in this kind of research, the more immediate and important question is whether Harvard, like other Universities, shall have a marine laboratory to facilitate the research of her own students.

Towards this something might be done in the near neighborhood of my own laboratory at Newport, if the necessary means can be raised. In some form or other, I have had this in mind since 1876, when the Marine Laboratory at Newport was opened, to which a certain number of the more advanced students of Harvard University were regularly invited. In doing this, I had always hoped that the time might come for joining with other institutions in establishing a more general laboratory for research. Such a plan has become impracticable, as we have seen; but it still seems to me that if Harvard is to have a marine laboratory of her own, the conditions at Newport are very favorable.

I would therefore propose that whenever sufficient means can be obtained a large laboratory for research should be built on the east side of the cove on which my own laboratory is placed, and that a dwelling-house for the use of students be erected on a suitable lot in the immediate vicinity. A large sea-going launch, suitable for dredging within fifty to seventy-five miles from Newport, is also needed, to give better collecting facilities than we have had before, and to supply larger material for the work of the Laboratory.

Until this shall be accomplished, a certain number of advanced students will continue to make use, as hitherto, of the limited room and facilities afforded by the existing laboratory. But it is evident that whatever can be offered will only be an adjunct as it were of the larger establishment which must soon be necessary if Harvard is to keep pace with sister Universities in this department of study.

For the less advanced students it would be necessary to equip the aquarium planned for the Museum, and it would be possible, with our facilities, to provide during the summer months for the instruction in marine zoölogy of a large number of students at a comparatively small expense, and thus to limit the use of the smaller laboratory at Newport to the more advanced students.

The addition of a large public Aquarium to the equipment of the Newport Laboratory would be an important adjunct. A most interesting and instructive public exhibit could easily be made from the more common marine animals of this part of our coast, and it is quite possible to obtain the support of a sufficient number of the residents of Newport in the establishment of an Aquarium, as considerable

interest has always been manifested in such a project. The Aquarium once built and in running order, there is little doubt that its ordinary expenses could be met by annual subscriptions and by the small admission fees charged to the transient public.

It would of course be of immense advantage if the Laboratory could control a large steamer of about two hundred feet in length, to be used for research and as a peripatetic laboratory for exploration along all parts of our coast or elsewhere. Such facilities, however, demand a large original outlay and a large annual expenditure. From $75,000 to $100,000 would be needed for the equipment of the vessel, and an annual income of from $25,000 to $30,000 to run it to advantage, and to provide the means of publication for the Station. Such an equipment would, however, be unique among the stations now in existence, and nothing would tend to develop more rapidly our knowledge of the natural history of the sea than such a vessel, well equipped and in charge of a director competent to undertake even distant expeditions devoted to the solution of some special problem of thalassography.

The publications of the Museum issued during the past academic year are as follows: —

Of the Bulletin. — Vol. XXII. [Complete.]

No. 1. Contributions from the Zoölogical Laboratory. — XXVIII. Observations on Budding in Paludicella and some other Bryozoa. By C. B. Davenport. pp. 114. 12 plates. November, 1891.

No. 2. Contributions from the Zoölogical Laboratory. — XXIX. The Gastrulation of Aurelia Flavidula, Pér. & Les. By F. Smith. pp. 12. 2 plates. December, 1891.

No. 3. Contributions from the Zoölogical Laboratory. — XXX. Amitosis in the Embryonal Envelopes of the Scorpion. By H. P. Johnson. pp. 36. 3 plates. January, 1892.

No. 4. A Fourth Supplement to the Fifth Volume of the Terrestrial Air-Breathing Mollusks of the United States and Adjacent Territories. By W. G. Binney. pp. 42. 4 plates. January, 1892.

Vol. XXIII.

No. 1. Reports on the Dredging Operations off the West Coast of Central America to the Galapagos, to the West Coast of Mexico, and in the Gulf of California, in charge of Alexander Agassiz, carried on by the U. S. Fish Commission Steamer "Albatross." — II. General Sketch of the Expedition of the "Albatross" from February to May, 1891. By A. Agassiz. pp. 90. 22 plates. February, 1892.

No. 2. Contributions from the Zoölogical Laboratory. — XXXI. The Mesoderm in Teleosts: especially its Share in the Formation of the Pectoral Fin. By E. R. Boyer. pp. 44. 8 plates. April, 1892.

No. 3. Contributions from the Zoölogical Laboratory. — XXXII. On Nectonema Agile, Verrill. By H. B. Ward. pp. 54. 8 plates. June, 1892.

Of the Memoirs. — Vol. XIV.

No. 2. The Discoboli. Cyclopteridae, Liparopsidae, and Liparididae. By S. Garman. pp. 96. 13 plates. April, 1892.

Vol. XVII.

No. 2. Reports on an Exploration off the West Coasts of Mexico, Central and South America, and off the Galapagos Islands, in charge of Alexander Agassiz, by the U. S. Fish Commission Steamer "Albatross," during 1891. — I. Calamocrinus Diomedae, a new Stalked Crinoid, with Notes on the Apical System and the Homologies of Echinoderms. By A. Agassiz. pp. 96. 32 plates. January, 1892.

We have published four numbers of the Bulletin, forming Volume XXII. of the series, and three numbers of the twenty-third volume. Of the quarto Memoirs two numbers have been published. The Library continues to increase, and our exchange list is on a most satisfactory footing.

ALEXANDER AGASSIZ.

CAMBRIDGE, October 1, 1892.

THE PEABODY MUSEUM OF AMERICAN ARCHAEOLOGY AND ETHNOLOGY.

TO THE PRESIDENT OF THE UNIVERSITY:

SIR, — This department of the University has been the centre of anthropological work in America during the past year, not only in consequence of the active field work and special researches carried on in connection with the Peabody Museum, but also from the fact that the office of the Department of Ethnology and Archaeology of the World's Columbian Exposition has been located in the museum for nearly two years. As a consequence, about one hundred assistants actively engaged in archaeological and ethnological researches, some for the whole time and others for varying periods, have received their instructions from this office and have reported to it; while much of the material gathered by these assistants has been received at the Museum preparatory to sending it to Chicago.

Never before has such an extensive field of anthropological research been covered in two years' time, and it is desirable to place on record what has been accomplished. In the north, Lieutenant Peary's

expedition to Greenland has brought back a valuable collection from the little known tribe of Eskimo at Whale Sound, including their summer houses of skins, their boats, sledges, weapons, implements, utensils, ornaments; full sets of garments and carvings in ivory, as well as several hundred photographs of individuals of the tribe, and of scenes illustrating their daily life; also several crania, and a complete census of the tribe with a full set of anthropometrical measurements and observations. In Labrador, the Skiles expedition (upon which I obtained positions for two Harvard students, one as a naturalist and the other as astronomer), has brought back 57 of the Labrador Eskimo, — men, women and children with all their belongings, — making an Eskimo village now on the Fair grounds in Chicago, where it will remain until the Fair is over. On the Pacific side Dr. Sheldon Jackson has made ethnological collections in Alaska, and also among the coast tribes of Siberia. Mr. Cherry has collected from the tribes of Yucon valley; and by seven other assistants a systematic collection has been made on the North West coast, between the Columbia River and Alaska, particularly from northern Vancouver and the Queen Charlotte Islands. On the Saskatchawan Mr. Cowie has made a complete collection to illustrate the life and customs of the tribes of the valley.

Arrangements have been made with the Canadian Commissioner of Indian affairs by which the interior tribes of Canada will be represented living on the Fair grounds; and by the coöperation of the Canadian Government World's Fair Commission a representation of the archaeology of Canada has been secured. In the eastern portion of Canada Mr. Tisdale and Mr. Fenollosa, both Harvard students, have collected anthropological data, and much of ethnological importance. Nearly all the Indian tribes of the United States have been visited by students from Harvard and other universities for the purpose of obtaining anthropological data relating to the physical charasteristic of the various tribes, and of collecting ethnological material. These young men have thus had a practical experience which will prove of advantage in their life work, and several have had rather severe trials in the rough life they were forced to lead. I am sorry to be obliged to state that in two instances the superstitions or sensibilities of the Indians were aroused to such an extent that two of the Harvard students were shot at from ambush, one of whom was slightly wounded. With these exceptions the assistants succeeded in their work without trouble. The following are the names of the Harvard students employed: George F. Shurtleff, Frank E. Bateman, S. K. Fenollosa, H. B. Montague, H. W. Ruoff, C. L. Hodgkins, F. Conger Smith, A. W. Fairbanks, P. R. Waughop, W. H. Wilson,

W. A. Hamilton, J. W. Cooke, A. R. Tisdale, and G. A. Kaven. The students from other universities will be recorded in a report to be prepared for the Exposition.

The State of New York through its World's Fair Commission has also been brought into this work. The Commissioners are earnestly coöperating with me in securing a large archaeological collection, and also a thorough representation of the Iroquis tribes. Families from these tribes will be living on the Exposition grounds in bark houses such as were in use when this powerful nation first came in contact with our race.

South of the United States, the Bureau of Latin-American Republics in connection with the State Department has been working with the Ethnological Department of the Exposition, of which it forms a section, and a number of officers of the army and navy were detailed to visit the various republics and arouse an interest in the Exposition, and also to make collections in ethnology and archaeology under instructions which I furnished for their guidance. These gentlemen have accomplished much of ethnological importance, and have secured several collections from the native peoples of Central and South America. Mr. Frederic Ober was sent to the West Indies and made a special research among the Caribs.

In relation to Mexican archaeology, Mrs. Zelia Nuttall, acting in her double capacity as honorary assistant in the Museum and in the Ethnological Department of the Exposition, has been engaged in a search for objects in Europe, brought there at the time of the Spanish conquest, and has found several interesting things, connected with the period of Cortez, of which she has had fac-similes made both for the Exposition and for the Museum.

Further south in Mexico, Consul E. H. Thompson has continued the work in connection with his explorations for the Museum among the ancient ruins of Yucatan. During this time he has made about 10,000 square feet of moulds of portions of the ruined buildings, showing the facades, parts of corners of structures, doorways, and the great recess with its pointed arch of the so named "House of the Governor" at Uxmal. He has also moulded both sides of the famous Portal at Labna. Casts are to be made from these moulds in Chicago, and next year there will be seen on the Exposition grounds fac-similes of these portions of the elaborately carved stone structures of Yucatan, over and around which will be the tropical plants native to the region of the ruins. As this work by Mr. Thompson was in connection with his explorations for the museum, we can secure such casts from the moulds as we may desire at the cost of making the casts, which, however, will be several thousand dollars.

The Museum Expedition to Honduras, which is an important part of the work of the year, will be specially mentioned further on, but as it forms a link in the chain of explorations it is referred to in this geographical review. Farther south, Mr. G. A. Dorsey, a graduate student in this department of the University, working as a special assistant for the Exposition, has made extensive and important explorations on the Island of La Plata, Ecuador, and in Peru and Bolivia, where he collected a large amount of material. Lieutenants Safford and Welles have secured series of garments, weapons and other objects illustrating the tribes of portions of the interior of South America. Other officers sent out by the Latin American Bureau have been farther south, and Patagonia and Tierra del Fuego have been drawn upon for representations of their ethnology.

Returning to the United States, archaeological work has been carried on in Ohio by Dr. Metz, Mr. Saville, Mr. Moorehead, Mr. H. I. Smith and Mr. Allan Cook. In the Delaware valley, Mr. Ernest Volk, who in previous years was in the field with me, has been engaged in making a careful exploration of several ancient village sites, burial places, and work shops or quarries, where stone implements were made. Mr. Allan Cook of the University also made a brief study of a small burial place on Cape Cod. Mr. M. H. Saville, a student assistant in the Museum, examined an ancient soapstone quarry in Connecticut from which interesting specimens were obtained both for the Museum and Exposition; and several gentlemen, particularly Dr. F. H. Williams, Mr. Wm. C. Richards and Mr. James Shepard, who showed him much courtesy, gave to the Museum a number of stone implements found on and near the old quarry. In Maine, Mr. C. C. Willoughby working entirely for the Museum, explored two singular burial places in the Androscoggin valley in which the graves were so old that the skeletons had entirely disappeared, leaving in the graves only masses of red ochre and numerous implements and other objects of stone. This exploration was conducted in a careful manner and the notes, drawings, and photographs of the objects in place show how thoroughly the work was done. A fine lot of implements in perfect condition was found by Mr. Willoughby, and several others obtained in former years from the same place were given to the Museum by Mr. Elijah Emerson of Bucksport. This remarkable collection will be exhibited in Chicago as part of the Peabody Museum exhibit and will afterwards be arranged in the Museum. At the request of Mr. T. H. B. Pierce of Dexter, Me., Mr. Willoughby also made a partial examination of a mound near Dexter which may be a burial mound. Further explora-

tion should be made, for if it prove to be a burial mound it would be the only one known in New England.

Important researches in Physical Anthropology have also been carried on. These were in part based on the observations made by the assistants among the native tribes, and in part upon collections. In this connection Dr. Franz Boas, aided by Dr. G. M. West and two clerical assistants, has been engaged in the museum in classifying the anthropological data and in preparing charts, tables and diagrams to illustrate this subject at the Exposition. Thus for the first time there is being prepared a presentation of the physical characteristics of the native American peoples. Measurements have also been taken, and observations made, on more than fifty thousand children in the public schools in different parts of the United States and Canada, as well as on those in the Indian schools, and on many negro children. In this connection we have secured the coöperation of the authorities of the Japanese schools, and of those of the Hawaiian Islands. We shall thus have the measurements of a number of Japanese and Kanaka children for comparison. To this series of physical measurements has been added a series of tests relating to the mental development of children. These observations and deductions will not only furnish data of importance to educators, but there is reason to believe, from what has already been accomplished in this direction, that they will also give the basis upon which decided reforms in certain directions will be established. It is almost needless to say that the details of this part of the work are entrusted to Dr. Franz Boas, who is my earnest collaborator in connection with the Exposition.

This brief review of the work of about 100 assistants shows how much has been done during the year; and as the Peabody Museum is the place from which it has all been directed, and as much of the work has been done by my regular assistants and students, it is eminently proper to refer to it in this report as showing the relation of the Museum to anthropological research in America. It must also be remembered that the Directors of the World's Columbian Exposition have not only given to me this grand opportunity for research, but that it has been largely paid for by the funds subscribed by the citizens of Chicago. Never before has there been a year when so much money has been expended for pure research in anthropology under one direction as during the past year; and praise and honor are due to the business men forming the Directory of the Exposition in Chicago, who have so cordially met my proposals and furnished the means for carrying them out on so grand a scale. Notwithstanding the vast material interests involved in the Columbian

Exposition, it must be admitted that Chicago has nobly supported pure science in this connection and has shown an appreciation of its high aims.

Additions to the Collections. — During the year many contributions have been made to the Museum, but it would take too much space to record them all and I will only draw attention to a few of the more important and interesting, having already alluded to several collections which are the property of the Museum, although they will be first shown at the Columbian Exposition.

Mr. Clarence B. Moore of Philadelphia, a Harvard graduate, has for years shown an earnest interest in the Museum in many practical ways and particularly by adding to our collection illustrative of the archaeology of Florida. Mr. Moore has for several years passed a portion of each winter in Florida and has given his time and means to the exploration of burial mounds and shell-heaps, and has purchased collections formed by other persons. All material thus collected he has presented to the Museum from time to time, and during the past year these gifts have been large and valuable. Among other lots is one obtained during his explorations of the large mound on Tick Island, of which he published a full and interesting account, with illustrations, in the American Naturalist. He has also recently sent us a collection obtained from a mound near Bluffton which includes several vessels of coiled pottery and a singular object of pottery resembling a large rounded jar with finished openings at top and bottom, an entirely new form of utensil for archaeologists to puzzle over. Mr. Moore has further shown his interest by sending us a beautiful platinotype enlarged from a photographic negative of the great shell-mound at Huntoon Island, where Proffessor Jeffries Wyman obtained the interesting material which is arranged in the Museum. This picture has been hung in its appropriate place near the Wyman collection.

There are many graduates of Harvard who, either about their homes or during their travels, must be constantly meeting with objects which would find an appropriate place in our halls, but although every now and then gifts are received from graduates, it is evident that with the many no thought has been given to the desirability of sending archaeological and ethnological specimens to the Museum. Many a time has the remark been made to me 'I would have sent such and such a thing to you had I supposed you would care for it." I beg now to impress upon one and all that we are desirous of receiving everything appropriate to the Museum, and that an object considered of little importance by the finder would often-

times prove of great scientific value if sent to the Museum accompanied with a memorandum stating where and how it was found.

The Serpent Mound Park. — Ever since the Serpent Mound became the property of the Museum, by the generosity of some of its friends, it has been my purpose to construct a perfect model of the Serpent Mound Park. The plans and moulds for this purpose have been gradually developed during the past few years and at last a beautiful model in papier maché has been made. This model includes the whole park of 75 acres as it now is with driveways, paths, groves, etc., and shows the ancient earth-works, burial sites, etc., in their relative positions. This is all accurately represented in a horizontal scale of 37½ feet to an inch, and a vertical scale of 12½ feet to the inch, from a survey by Mr. C. Cowen, who made a plaster model in the Museum under my direction. From this model a mould was taken by the Ward Company of Rochester, who cast the work in papier maché and finished it in all its details in a thorough and artistic manner. By studying this model one obtains a comprehensive impression of this singular earthwork and its surroundings, which plans and photographs fail to give. It is a good evidence of the necessity of such models as objects of study in a museum. A copy of this model has been made for the Columbian Exposition, and I am now having made similar models of other noted earthworks in the Ohio valley, copies of which could be secured for the Museum if we had the means to pay for the casting and finishing.

The Honduras Expedition. — It was stated in the last report that an expedition had just started to make the preliminary explorations or the ancient ruins of Copan, and in that report is given a brief outline of the origin and plans of this undertaking on the part of the Museum to be carried on by the assistance of patrons of archaeological research. It is indeed a pleasurable duty to announce that the first season's work of the expedition has proved a decided success; and that although the party had many trials and difficulties to overcome, no serious accidents or sickness occurred. Messrs. Saville and Owens returned in safety, in May last, bringing with them a large number of most interesting and important objects illustrating the wonderful carvings in stone; several vessels and many fragments of pottery; numerous ornaments made of stone, shells and bone; stone implements; and portions of human skeletons. Among the latter are several incisor teeth, each of which contains a small piece of green stone, presumably jadeite, set in a cavity drilled on the front surface of the tooth. We had before received from very ancient

graves in Yucatan human teeth filed in a peculiar manner, and now we have teeth from the ancient graves in Copan ornamented in another way. This is of particular interest in adding one more to the several facts pointing to Asiatic arts and customs as the origin of those of the early peoples of Central America. A most striking resemblance to Asiatic art is noticed in several of the heads carved in stone, — one in particular, if seen in any collection and not labelled as to its origin, would probably pass almost unchallenged as from Southern Asia. These may prove to be simply coincidences of expression of peoples of corresponding mental development brought about by corresponding natural surroundings and conditions. At present we must admit that there are many resemblances in architecture, sculpture, ornament, and religious symbolism, between Central America and portions of Asia. The true meaning of these resemblances will be made known as authentic materials for study are obtained by such thorough and exhaustive field work as the Museum has been carrying on; and none is so important for this special subject as that of the Honduras expedition. For this work, however, a large sum of money is required. The ten years allowed for the work in Honduras by the edict of that government must be utilized to the fullest extent; and each year must find the Museum ready to put its party in the field well equipped and provided with money for the very expensive work to be performed.

It is not my intention to give an abstract of the results of last year's explorations at Copan. It is far better that the report should be carefully prepared by those engaged in the actual field work from year to year. After sufficient information has been obtained about the ruins themselves, and the architectural and chronological relationship of the various structures; and after a thorough knowledge of the different modes of burial has been acquired, and all possible objects have been collected, then conclusions can be drawn which will be of scientific value, since they will be based on a thorough knowledge of all the facts. An important beginning was made by the expedition last year, plans of the plaza and of the principal structures forming the great mass of the ruins having been made, many photographs taken, and paper moulds of important sculptures, lines of hieroglyphs and several of the large idols or carved monoliths secured. Considering the difficulties of transportation (wholly by mules to the coast, — a seven days' journey), both Messrs. Saville and Owens, and all associated with them must be congratulated on what they accomplished. Since the return of the expedition the photographs have been printed, preliminary reports have been prepared, and casts have been made from the moulds. These casts are now being

placed in the Museum, and a series has also been made for the Boston Art Museum, and another for the Columbian Exposition.

It is a pleasure to state that the party received much kindly aid from the enlightened citizens with whom they were brought in contact, particularly from Mr. and Mrs. Potts at Yzabal, whose kind attentions proved most opportune as the yellow fever was prevalent at that port at the time of the return of the party. Mr. Anderson, our Consul at Livingston, also extended assistance and courtesies, and the government officials of the district were polite to the party. The Rev. Bishop of Copan was an interested visitor to the camp, and his intelligent appreciation of the work was most encouraging.

The field party for the present year is under the charge of Mr. Owens, who left for Honduras on the 6th of November, sailing from New Orleans on the 10th, well supplied with an outfit and accompanied by a surveyor and a photographer. To the Department of State at Washington we are under obligations for assistance in various ways, and for special letters of introduction for the party. Secretary Blaine extended the courtesies last year, and Secretary Foster has been equally courteous at this time and has also given Mr. Owens a special passport, as an honorary assistant in my Department of the World's Columbian Exposition, which will prove of assistance to him both in Honduras and Guatemala.

The Huntington Frothingham Wolcott Fund. — As noted in the last report this fund of $10,000 was given by the Hon. Roger Wolcott, as a memorial of his brother, under such generous conditions that the income can be used in many ways for the benefit of the Museum. By vote of the Board of Trustees $500 of the income was expended this past year for the purchase of a collection of several hundred objects of pottery and a few of copper found in ancient graves in the Cauca Valley in Colombia, S. A. This is the first collection of any importance from this region which has been brought to this country, and I have been trying for several years to secure it for the Museum. It is a most interesting type of pottery, very different as a whole from that of Peru or of Central America, although it has some resemblances to the ceramic art of Nicaragua. The remarkable depth of the incised ornaments on the vessels, and the many deeply cut stamps and cylinders for impressing patterns upon cloths or other substances, are unusual, while the various forms and large number of spindle-whorls show that the people were spinners and weavers who had made considerable advance in decorative art. In contrast to this higher art are many rudely realistic forms of men and women, and in contrast again with these

are several vessels of chaste design in colors. It is a great satisfaction to know that this fund will enable us to purchase other collections from year to year, and I already have the refusal of several.

Instruction. — During the year there have been three graduate students in this department: Mr. G. A. Dorsey, Mr. J. G. Owens, and Mr. F. H. Gerrodette. Mr. Owens and Mr. Dorsey both had leave to pursue their studies in the field. Mr. Dorsey, after a year's work in the Museum, went to South America in May, 1891, to carry on archaeological and ethnological researches as a special assistant of the Ethnological Department of the World's Columbian Exposition. He returned in September last, having made extensive researches in Peru, Chili, Bolivia and on the Island of La Plata. Mr. Owens, after a year's study in the Museum, went to Honduras the last of November, 1891, and returned in May, 1892, spending a portion of the summer at the Museum, and the remainder in a short trip to the Madrid Exposition. He returned in time to prepare for this year's expedition to Hunduras, for which place he started in November with leave of absence for work in the field. Both Mr. Dorsey and Mr. Owens are studying in this Department for the degree of Ph.D. Mr. Owens has been the holder of the Hemenway fellowship for two years. Mr. Gerrodette entered the Department for a year's study for the degree of A.M. and having given considerable time in his senior year to laboratory work in this department, he was employed in making a general review of the whole subject of American archaeology, and afterwards in preparing a map and special account of the native tribes of Central America, working through the larger part of the vacation for this purpose. Mr. Allan Cook, a special student in the Scientific School, has been doing regular laboratory work in this department during term time, and has been engaged in field work under my direction during the vacation. Mr. M. H. Saville, the holder of the Visiting Committee's fellowship, was on the Honduras expedition from November, 1891, to May, 1892, the remainder of the time he has been at work in the Museum or in the field, as a student assistant of the Museum. Miss Alice C. Fletcher, the holder of the Thaw fellowship, has carried on her researches among the Nez Percé Indians, where she has also been employed by the Government in allotting the land in severalty to the tribe. She has brought her studies of Indian Music so far towards completion as to prepare an extensive monograph upon the subject. Mrs. Zelia Nuttall, special assistant in Mexican archaeology, has continued her researches in Europe, and has been engaged in preparing for publication an ancient Mexican MS. which she is now reproducing

in fac-simile with notes. This MS. is in the National Library of Florence but has been hitherto overlooked. She has also made an important discovery relating to the calendar system of the ancient Mexicans.

As leave of absence from the University has been granted to me until January, 1894, that I may perform the duties of my position as Chief of the Department of Ethnology at the World's Columbian Exposition, instruction in this department of the University will be suspended at the Museum during my absence. Students in the department will, however, have the opportunity of studying the collections brought together in Chicago, and I am confident that it will be the most desirable opportunity of their life time for making comparative researches in the several branches of anthropology. While I shall thus be absent from Cambridge, I shall continue to direct affairs at the Museum which will be kept open as usual under the charge of Mr. Chick. The correspondence will be attended to by Miss Smith, and I shall hope to make occasional brief visits to Cambrige.

Publications. — No. IV of the "Archaeological and Ethnological Papers of the Peabody Museum" was published during the year. This number contains a full and illustrated account of the discoveries by Dr. Hilborne T. Cresson of the numerous stone implements and other objects in the mud of the Delaware River, near the mouth of Naaman's Creek, Del. These objects were found in close proximity to three groups of ends of piles or stakes which were long ago placed in the river, and Dr. Cresson suggests that they may have been the remains of ancient fish wiers. The collection found at this place, with several of the pile ends, is arranged in the Museum to which they were given by Dr. Cresson as noticed in a former report.

No. V of the papers is in press and will contain an account of Mrs. Nuttall's remarkable discovery and reconstruction of the calendar system of the Ancient Mexicans, — a paper which will be valuable to students of Mexican archaeology and will show from astronomical data that the Mexican calendar has an antiquity of at least four thousand years. This is unquestionably one of the most interesting discoveries that has been made, relating to American archaeology and it will lead to many important comparative researches on the calendars of the Mexican and Asiatic peoples.

No. VI of the Papers is also in press and consists of Miss Fletcher's memoir on Indian Music, with an appendix containing a critical study and discussion of the music by Prof. J. C. Fillmore of the Milwaukee school of music. This memoir is the result of

ten years' study of Indian music by Miss Fletcher, who was the first to enter this interesting field of research, and who has gathered and put into musical notation several hundred songs of Indians of various tribes. Two hundred of these songs, words and music, will be given as illustrations in the memoir.

The publication of these Papers has been slightly helped by the subscriptions we have received, but we must trust to generous patrons to pay for such publications until the much needed fund for the purpose is secured. To any one wishing to advance anthropological science by furnishing the means of making known to the world the long and conscientious work of thorough investigators, I am confident no greater opportunity exists than by furnishing the means for the publication of such papers as are prepared in connection with the work under the direction of the Museum.

Gifts of Money. — Although the money expended by the Honduras expedition has not yet been entered upon the books of the Museum, it was given by friends to the committee having the matter in charge, and not a cent of the cost of the expedition came from the limited income of the Museum, which is not even sufficient for current expenses. These expenses have been met in part during the year by the continued assistance of a few friends as shown in the following summary of the "cash account."

The necessities of the museum are many, and it is hoped that its present activity will not be checked from the lack of means, and that our little income of about $2500 for strictly museum purposes may be greatly increased during the present year. We have so much new material of interest to arrange and exhibit, and so many cases to be built before our new halls are properly equipped, and so much to do in the fields of exploration and publication, as to make it essential that our small income should be largely increased if we are to accomplish any considerable portion of what is now expected of the Museum.

The Visiting Committee. — I wish to thank most heartily the members of the committee appointed by the Overseers to visit the Museum for all they have done in creating an interest in its objects, and for their constant and cordial appreciation of our work and their assistance in our undertakings.

Cash Account. — The following summary gives the receipts and expenses for the fiscal year ending September 1, 1892. It should be noted that the gifts for the Honduras Expedition, amounting to

$8209.17, are not entered in the summary; also the income of the Thaw fellowship fund, $1050, which was paid to Miss Fletcher, the holder of the fellowship; and the $400 paid to Mr. Owens as holder of the Hemenway fellowship.

RECEIPTS.

Balance on hand from last account	$186.74	
Received gift from Mrs. Mary Copley Thaw	1000.00	
" " " "M"	1000.00	
" " " Mrs. Elizabeth C. Ware	100.00	
" " " N. E. Telegraph, Telephone Co.,	28.00	
" " " Mrs. N. E. Baylies	25.00	
Received from Harvard College, care of Semitic room one year,	52.00	
" " Subscription Museum Papers $20.00		
" " Publications sold 20.89		
	40.89	
Received from Francis C. Lowell on account Visiting Committee Fellowship	200.00	
Received from Francis C. Lowell, Treasurer, on account Huntington-Frothingham-Wolcott Fund	500.00	
Received from F. C. Lowell, Treasurer, Income	6114.91	
		$9247.54

EXPENSES.

Building.		
Repairs, care and incidentals	$915.75	
Fuel, water, and gas	328.51	
Cases, stock and labor	1423.90	
		$2668.16
Publications and Library.		
Books and Subscriptions	$74.33	
Printing copies of 25th Report from the President's report	10.00	
		$84.33
Museum.		
Painting Charnay casts	$71.72	
Photographs and Materials	65.38	
Explorations and collections	1916.85	
Express, Postage, Telegraph and Telephone	116.29	
Incidentals	42.33	
Salaries	3906.70	
M. H. Saville, Visiting Committee Fellowship	241.66	
Balance to new account	134.12	
		$6496.05
		$9247.54

Respectfully submitted,

F. W. PUTNAM,

Peabody Professor of American Archaeology and Ethnology, and Curator of the Museum.

CAMBRIDGE, December 14, 1892.

THE SEMITIC MUSEUM.

To the President of the University:

Sir, — Since the report of one year ago two boxes of casts have arrived from Paris, and one from London. The contents of these and of four others received from Paris in September, 1891, have been catalogued, labeled, and placed on exhibition. Among the casts from Paris are colored reproductions of four of the statues and two of the heads found by De Sarzec at Tello in Chaldaea. The painting is the work of M. A. Glycys and is admirably done. These casts need each a separate case. They have long inscriptions on all sides, and the originals are among the oldest and most remarkable objects yet discovered in Babylonian ruins.

The box from London contained four Babylonian building bricks with inscriptions, a cast of a section of the bronze gate found at Balawat and belonging to the reign of the Assyrian king Shalmaneser II. (858–824 B.C.), impressions of one hundred stone seal cylinders, and casts of many interesting stone and clay records. Among these records are the tablet from Abu Habba with representation of the Sungod in his temple, the tablet containing the Assyrian version of the Deluge story, inscriptions of Nebuchadnezzar, and commercial documents partly in cuneiform and partly in Aramaic characters.

The Museum has acquired by purchase a collection embracing old Phoenician stone, glass and earthenware objects, modern Bedouin articles, etc. These have come so recently that there has not been time to prepare them for exhibition.

The list of photographs has been increased by the addition of the series taken in Asia Minor in the summer of 1887 by Mr. J. H. Haynes.

The casts ordered from the Imperial Museum at Constantinople are in course of preparation, and we shall also receive additional casts from the Louvre.

Connections have been established with Beirut, and there is prospect of additions by this channel of Palmyrene, Phoenician and Palestinian objects.

When the Museum was opened in May, 1891, a few of the casts were not provided with cases. It was noticed last December that some thoughtless person had marred one of these. The Museum was accordingly kept closed for a period of about six weeks while suitable cases were in course of preparation.

Stephen Salisbury, Esq., has made a contribution toward the cost of additional cases now much needed. Further contributions to this object would be most welcome.

The Museum has been much resorted to during the year both by students and by the general public. Its collections have been of particular value to the students of Hebrew and Assyrian history, and have furnished material for special study to those pursuing the Arabic, Assyrian, and Phoenician languages.

We are indebted to John Orne, Esq., for descriptive labels to several of the Arabic manuscripts and to all of the mortuary inscriptions from Cairo. Mr. Orne has also transcribed these inscriptions from the Cufic into the ordinary Arabic character, and has presented the transcriptions accompanied with translations in a bound volume to the Museum. These labels, transcriptions and translations are the result of painstaking study in a field to which Mr. Orne has long devoted himself.

It is to the interest of the Museum and the University that the collection should grow more rapidly than it has done during the past year. The process of preparing casts at the great museums abroad is slow because of the varied and heavy demands made on the time of the workmen. For the acquisition of original objects from the Orient it is desirable to have in London, Paris, and Beirut, representatives who are specially interested in our Museum. As yet no such persons have been secured. The curator is therefore of the opinion that a new visit ought to be made to the European museums, and ought if possible to be extended to the Orient. It could not be so fruitful in securing casts as the visit of two years ago, but it might add very materially to our collection of manuscripts and other original articles. In particular the Palestinian and Biblical section of the Museum might be thereby enlarged. Such a trip would be expensive and, however desirable, must remain impossible until some generous friend or friends shall provide the money.

D. G. LYON, *Curator.*

DECEMBER 8, 1892.

APPENDIX.

RESIGNATIONS.

David Clarence Torrey, Proctor, December 14, 1891.

Henry Pickering Bowditch, member of the Faculty of the Museum of Comparative Zoölogy, December 28, 1891.

Edward Campbell Beckett, Superintendent of the Veterinary Hospital, January 11, 1892.

Wilbert Soule, Resident Surgeon at the Veterinary Hospital, January 11, 1892.

Daniel David Lee, Instructor in Anatomy, January 11, 1892.

Edward Campbell Beckett, Instructor in Operative Veterinary Surgery, January 25, 1892.

Clarence Albert Hight, Assistant in English, February 8, 1892.

Charles Rochester Eastman, Proctor, February 8, 1892.

Frederick Wesley Dewart, Proctor, February 29, 1892.

Frederick Irving Knight, Clinical Professor of Laryngology, April 25, 1892, to take effect September 1, 1892.

Frank Bigelow Tarbell, Instructor in Greek and Latin, May 28, 1892, to take effect September 1, 1892.

John Ritchie, Jr., Assistant in the Astronomical Observatory, May 28, 1892.

Lewis Jerome Johnson, Instructor in Engineering, September 27, 1892.

Daniel William Shea, Assistant in Physics, September 27, 1892.

APPOINTMENTS.

[UNLIMITED, OR FOR TERMS LONGER THAN ONE YEAR.]

Nathaniel Southgate Shaler, to be Dean of the Lawrence Scientific School, October 12, 1891.

Solon Irving Bailey, to be Assistant in the Observatory, October 12, 1891.

Harold Clarence Ernst, to be Assistant Professor of Bacteriology for five years from September 1, 1891, October 26, 1891.

Frank William Taussig, to be Assistant Professor of Political Economy for five years from September 1, 1891, October 26, 1891.

William Fiske Whitney, to be Professor of Parasites and Parasitic Diseases, October 26, 1891.

Henry Pickering Walcott, to be a member of the Faculty of the Museum of Comparative Zoölogy. The nomination of Mr. Walcott was received from the Secretary of the Faculty of the Museum of Comparative Zoölogy, and confirmed December 28, 1891.

Frederick Huntington Osgood, to be Professor of Veterinary Surgery, January 11, 1892.

Kenelm Winslow, to be Assistant Professor of Veterinary Therapeutics for five years from September 1, 1892, January 11, 1892.

Reginald Heber Fitz, to be Professor of the Theory and Practice of Physic, January 25, 1892.

HUGO MÜNSTERBERG, to be Professor of Experimental Psychology for three years from September 1, 1892, April 25, 1892.

WILLIAM THOMAS COUNCILMAN, to be Shattuck Professor of Pathological Anatomy, April 25, 1892, from September 1, 1892.

EUGENE WAMBAUGH, to be Professor of Law, April 25, 1892, from September 1, 1892.

JOSEPH HENRY BEALE, to be Assistant Professor of Law for five years from September 1, 1892, April 25, 1892.

FRANK WILLIAM TAUSSIG, to be Professor of Political Economy, May 9, 1892, from March, 1, 1892.

JUSTIN WINSOR,
WILLIAM HOPKINS TILLINGHAST,
WILLIAM COOLIDGE LANE,
FRANK BOLLES,
} to be members of the University Council, May 28, 1892.

WILLIAM JAMES ASHLEY, to be Professor of Economic History, May 28, 1892, from September 1, 1892.

CHARLES GROSS, to be Assistant Professor of History for five years from September 1, 1892, May 28, 1892.

JOHN ELIOT WOLFF, to be Assistant Professor of Petrography for five years from September 1, 1892, May 28, 1892.

EDWARD CUMMINGS, to be Instructor in Sociology, May 28, 1892, from September 1, 1892.

WILLIAM FOGG OSGOOD, to be Instructor in Mathematics, May 28, 1892, from September 1, 1892.

SOLON IRVING BAILEY, to be Assistant Professor of Astronomy for five years from the time he leaves the United States to take charge of the Station at Arequipa, May 31, 1892.

WILLIAM HENRY BURR, to be Professor of Engineering, June 4, 1892, from September 1, 1892.

WILLIAM HENRY HOWELL, to be Associate Professor of Physiology, June 4, 1892, from September 1, 1892.

MAURICE HOWE RICHARDSON, to be Assistant Professor of Anatomy for five years from September 1, 1892, June 4, 1892.

SYLVESTER ROSA KOEHLER, to be Curator of the John Witt Randall collection of Engravings for five years from May 10, 1892, June 13, 1892.

JOHN BERTRAM WILLIAMS, to be Publication Agent, June 13, 1892, from June 15, 1892.

GEORGE PIERCE BAKER, to be Instructor in English, June 13, 1892, from September 1, 1892.

JEFFERSON BUTLER FLETCHER, to be Instructor in English, June 13, 1892, from September 1, 1892.

THEODORE WILLIAM RICHARDS, to be Instructor in Chemistry, June 13, 1892, from September 1, 1892.

WALLACE CLEMENT SABINE, to be Instructor in Physics, June 13, 1892, from September 1, 1892.

BENJAMIN LINCOLN ROBINSON, to be Curator of the Herbarium, June 20, 1892.

CHARLES SEDGWICK MINOT, to be Professor of Histology and Human Embryology, June 28, 1892.

ALBERT BUSHNELL HART, to be Assistant Professor of History for five years from September 1, 1892, September 27, 1892.

[FOR ONE YEAR OR LESS.]

For 1891-92.

JOHN WILLIAMS WHITE,
JAMES BARR AMES,
GEORGE ALONZO BARTLETT,
WILLIAM HOOPER,
GEORGE BURNAP MORISON,
MAURICE HOWE RICHARDSON,
} to be a Committee on the Regulation of Athletic Sports, October 12, 1891.

JOHN CREAN CARDWELL, to be Instructor in Physiology, October 12, 1891.

FREDERICK EDWARD CHENEY, to be Instructor in Ophthalmology and Clinical Instructor in Ophthalmoscopy, October 12, 1891.

DANIEL DAVID LEE, to be Instructor in Anatomy, October 12, 1891.

JAMES LEE LOVE, to be Instructor in Mathematics, October 12, 1891.

WILLIAM LYON PHELPS, to be Instructor in English, October 12, 1891.

BENJAMIN LINCOLN ROBINSON, to be Instructor in German, October 12, 1891.

KENELM WINSLOW, to be Instructor in Materia Medica, Botany and Veterinary Therapeutics, October 12, 1891.

WILLIAM MCMICHAEL WOODWORTH, to be Instructor in Microscopical Anatomy, October 12, 1891.

THOMAS HATFIELD CURRIE, to be Assistant in Mineralogy, October 12, 1891.

WALTER LOUIS JENNINGS, to be Assistant in Chemistry, October 12, 1891.

GEORGE JOSEPH OSCAR PFEIFFER, to be Assistant in Chemistry, October 12, 1891.

BENJAMIN LINCOLN ROBINSON, to be Assistant in the Herbarium, October 12, 1891.

ARTHUR HOWARD WENTWORTH, to be Assistant in Chemistry, October 12, 1891.

BENJAMIN EDWARD CARTER, to be Proctor, October 12, 1891.

THEODORE HENCKELS, to be Instructor in French, October 26, 1891.

JAMES GRAY LATHROP, to be Instructor in Athletics, October 26, 1891.

ROBERT WHEELER WILLSON, to be Instructor in Physics, October 26, 1891.

HARRY FLETCHER BROWN, to be Assistant in Chemistry, October 26, 1891.

FRANK BREWSTER, to be Instructor in the Peculiarities of Massachusetts Law and Practice, November 9, 1891.

HENRY FISKE LEONARD, to be Clinical Lecturer in the School of Veterinary Medicine, November 9, 1891.

HARWOOD HUNTINGTON, to be Assistant in Chemistry, November 9, 1891.

EDWARD MILLER GREENE, to be Assistant in Histology, November 30, 1891.

BENJAMIN RAND, to be Assistant in Philosophy, November 30, 1891.

FRANCIS GORDON CAFFEY, to be Proctor, December 14, 1891.

ROBERT TRACY JACKSON, to be Assistant in Palaeontology, December 28, 1891.

HENRY FISKE LEONARD, to be Instructor in Anatomy, January 11, 1892.

HENRY CLAY BADGER, to be Curator of Maps, January 25, 1892, for six months, ending July 1.

WILLIAM GRAY,
HENRY LEE,
WILLIAM STURGIS BIGELOW,
} to be Trustees of the Museum of Fine Arts, February 8, 1892.

WESLEY LEVI LABAW, to be Assistant Surgeon at the Veterinary Hospital, February 8, 1892.

LESTER HERD HOWARD, to be Clinical Lecturer, February 8, 1892.

ARTHUR EVERETT HEALEY, to be Proctor, February 8, 1892.

JOHN EDMUND BARSS, to be Proctor, February 29, 1892.
Professor A. V. WILLIAMS JACKSON, to be Lecturer on the Mazdean Religion, March 28, 1892.
JOHN GEORGE JACK, to be Arboretum Lecturer, April 25, 1892.

For 1892-93.

FRANK BREWSTER, to be Instructor in the Peculiarities of Massachusetts Law and Practice, April 25, 1892.
FREDERICK PERRY FISH, to be Lecturer on Patent Law, April 25, 1892.
JAMES BYRNE, to be Lecturer on the New York Code, September 27, 1892.

JOHN WESLEY CHURCHILL, to be Instructor in Elocution in the Divinity School, June 13, 1892.
EDWARD HALE, to be Instructor in Homiletics, September 27, 1892.

FRANK BEVERLY WILLIAMS, to be Instructor in Roman Law, May 9, 1892.
MAXIME BÔCHER, to be Instructor in Mathematics, May 28, 1892.
THEODORE HENCKELS, to be Instructor in French, May 28, 1892.
MAX POLL, to be Instructor in German, May 28, 1892.
EBENEZER CHARLTON BLACK, Lecturer on English Literature, May 31, 1892.
ALPHONSE BRUN, to be Instructor in French, May 31, 1892.
CLEMENT COLLESTER HYDE, to be Assistant in Physics, May 31, 1892.
ARTHUR KENDRICK, to be Assistant in Physics, May 31, 1892.
ALFRED COPE GARRETT, to be Assistant in Anglo Saxon, June 4, 1892.
GEORGE JOSEPH OSCAR PFEIFFER, to be Assistant in Chemistry, June 4, 1892.
HARRIS EASTMAN SAWYER, to be Assistant in Chemistry, June 4, 1892.
LYMAN ABBOTT,
CHARLES CARROLL EVERETT,
LEIGHTON PARKS,
ELIJAH WINCHESTER DONALD,
} to be Preachers to the University, June 13, 1892.
WASHINGTON GLADDEN, to be Preacher to the University, September 27, 1892.
JAMES BARR AMES,
GEORGE ALONZO BARTLETT,
WILLIAM MORRIS DAVIS,
MAURICE HOWE RICHARDSON,
WILLIAM HOOPER,
} to be a Committee on the Regulation of Athletic Sports, June 13, 1892.
DANIEL DENISON SLADE, to be Lecturer on Comparative Osteology, June 13, 1892.
ARTHUR ASTOR CAREY, to be Instructor in English, June 13, 1892.
WILLIAM MORSE COLE, to be Instructor in Political Economy, June 13, 1892.
SAMUEL SILAS CURRY, to be Instructor in Elocution, June 13, 1892.
CHARLES BENEDICT DAVENPORT, to be Instructor in Zoölogy, June 13, 1892.
WILLIAM FRANCIS GANONG, to be Instructor in Botany, June 13, 1892.
HERMAN WADSWORTH HALEY, to be Instructor in Latin, June 13, 1892.
THADDEUS WILLIAM HARRIS, to be Instructor in Geology, June 13, 1892.
JOHN JOSEPH HAYES, to be Instructor in Elocution, June 13, 1892.
JOHN HAYS GARDINER, to be Instructor in English, June 13, 1892.
BYRON SATTERLEE HURLBUT, to be Instructor in English, June 13, 1892.
HAMMOND LAMONT, to be Instructor in English, June 13, 1892.

ALFRED BULL NICHOLS, to be Instructor in German, June 13, 1892.
HERBERT NICHOLS, to be Instructor in Psychology, June 13, 1892.
BENJAMIN LINCOLN ROBINSON, to be Instructor in German, June 13, 1892.
GEORGE SANTAYANA, to be Instructor in Philosophy, June 13, 1892.
JOSEPH TORREY, Jr., to be Instructor in Chemistry, June 13, 1892.
WILLIAM MCMICHAEL WOODWORTH, to be Instructor in Microscopical Anatomy, June 13, 1892.
ROBERT MORSS LOVETT, to be Assistant in English, June 13, 1892.
HUGH MCCULLOCH, to be Assistant in English, June 13, 1892.

FRANK COLE BABBITT,
JOHN EDMUND BARSS,
FRANCIS GORDON CAFFEY,
FRANCIS CHARLES HENRY CATTERALL,
MONTAGUE CHAMBERLAIN,
ARTHUR MORGAN DAY,
CARL ADOLPH EWALD,
ARTHUR EVERETT HEALEY,
HENRY HUDSON,
HARRY MCCORMICK KELLY,
AUGUSTUS WHITE LONG,
CHARLES HADDON MCINTYRE,
CHARLES LOUIS MIX,
LEWIS KENNEDY MORSE,
WINFIELD SCOTT NICKERSON,
FRANK STANLEY STEBBINS,
} to be Proctors, June 13, 1892.

HEINRICH CONRAD BIERWIRTH, to be Instructor in German, June 28, 1892.
CHARLES BURTON GULICK, to be Instructor in Greek, June 28, 1892.
ABRAM WYMAN, to be Proctor, June 28, 1892.
FRANCIS KINGSLEY BALL, to be Instructor in Latin, September 27, 1892.
FRANK DYER CHESTER, to be Assistant in Semitic Languages, June 28, 1892.
RICHARD ELWOOD DODGE, to be Assistant in Geology, June 28, 1892.
LEON STACY GRISWOLD, to be Assistant in Geology, June 28, 1892.
WILLIAM GARFIELD HORMELL, to be Assistant in Physics, June 28, 1892.
GEORGE EDGAR LADD, to be Assistant in Geology, June 28, 1892.
DANIEL WILLIAM SHEA, to be Assistant in Physics, June 28, 1892.
ROBERT DECOURCY WARD, to be Assistant in Physical Geography and Meteorology, June 28, 1892.
JAY BACKUS WOODWORTH, to be Assistant in Geology, June 28, 1892.
FRANCIS GORDON CAFFEY, to be Assistant in Forensics, September 27, 1892.
SIDNEY CALVERT, to be Assistant in Chemistry, September 27, 1892.
FRANK JOHN VIETS DAKIN, to be Assistant in Fine Arts, September 27, 1892.
HUTCHINS HAPGOOD, to be Assistant in Forensics, September 27, 1892.
HARWOOD HUNTINGTON, to be Assistant in Chemistry, September 27, 1892.

LEBARON RUSSELL BRIGGS,
CHARLES ELIOT NORTON,
CHARLES JOYCE WHITE,
GEORGE ALONZO BARTLETT,
WILLIAM MORRIS DAVIS,
CHARLES ROCKWELL LANMAN,
FRÉDÉRIC CÉSAR DE SUMICHRAST,
} to be Members of the Administrative Board of Harvard College, September 27, 1892.

FREEMAN SNOW,
PHILLIPPE BELNAP MARCOU,
CHARLES GROSS,
OLIVER WHIPPLE HUNTINGTON
MORRIS HICKEY MORGAN,
ALBERT ANDREW HOWARD,
EDWARD CUMMINGS,
ARTHUR RICHMOND MARSH.
WILLIAM FOGG OSGOOD,
} to be members of the Administrative Board of Harvard College, September 27, 1892.

NATHANIEL SOUTHGATE SHALER,
HENRY BARKER HILL,
WILLIAM HUBERT BURR,
EDWIN HERBERT HALL,
PAUL HENRY HANUS,
JOHN ELIOT WOLFF,
HANS CARL GÜNTHER VON JAGEMANN,
} to be Members of the Administrative Board of the Lawrence Scientific School, September 27, 1892.

JAMES MILLS PEIRCE,
JAMES BRADSTREET GREENOUGH,
CRAWFORD HOWELL TOY,
GEORGE LINCOLN GOODALE,
CHARLES LORING JACKSON,
EDWARD LAURENS MARK,
EDWARD STEVENS SHELDON,
BENJAMIN OSGOOD PEIRCE,
EDWARD CHANNING,
WILLIAM JAMES ASHLEY,
} to be Members of the Administrative Board of the Graduate School, September 27, 1892.

GEORGE WELLS FITZ, to be Instructor in Physiology and Hygiene, December 28, 1891.

COMFORT AVERY ADAMS, Jr., to be Instructor in Electrical Engineering, June 13, 1892.

LEWIS JEROME JOHNSON, to be Instructor in Engineering, June 13, 1892.

JAMES LEE LOVE, to be Instructor in Mathematics, June 13, 1892.

JOHN CASSAN WAIT, to be Instructor in Surveying and Drawing, June 13, 1892.

ROBERT WHEELER WILLSON, to be Instructor in Astronomy and Physics, June 13, 1892.

ROBERT TRACY JACKSON, to be Instructor in Palaeontology, June 28, 1892.

ARTHUR LEON GIBLIN, to be Instructor in Engineering, September 27, 1892.

WILLIAM EDWARD MCCLINTOCK, to be Instructor in Highway Engineering, September 27, 1892.

SAMUEL HOLMES DURGIN, to be Lecturer on Hygiene, June 13, 1892.

THEODORE WILLIS FISHER, to be Lecturer on Mental Diseases, June 13, 1892.

EDWARD MARSHALL BUCKINGHAM, to be Instructor in Diseases of Children, June 13, 1892.

HERBERT LESLIE BURRELL, to be Instructor in Clinical Surgery, June 13, 1892.

JOHN CREAN CARDWELL, to be Instructor in Physiology, June 13, 1892.

ELBRIDGE GERRY CUTLER, to be Instructor in the Theory and Practice of Physic, June 13, 1892.

FRANCIS HENRY DAVENPORT, to be Instructor in Gynaecology, June 13, 1892.
WILLIAM WHITWORTH GANNETT, to be Instructor in Clinical Medicine, June 13, 1892.
CHARLES MONTRAVILLE GREEN, to be Instructor in Obstetrics, June 13, 1892.
FRANKLIN HENRY HOOPER, to be Instructor in Laryngology, June 13, 1892.
JAMES JACKSON PUTNAM, to be Instructor in Diseases of the Nervous System, June 13, 1892.
HENRY PARKER QUINCY, to be Instructor in Histology, June 13, 1892.
HERMAN FRANK VICKERY, to be Instructor in Clinical Medicine, June 13, 1892.

ARTHUR TRACY CABOT, to be Clinical Instructor in Genito-urinary Surgery, June 13, 1892.
EDWARD COWLES, to be Clinical Instructor in Mental Diseases, June 13, 1892.
GEORGE WASHINGTON GAY, to be Clinical Instructor in Surgery, June 13, 1892.
FRANCIS BOOTT GREENOUGH, to be Clinical Instructor in Syphilis, June 13, 1892.
JOHN HOMANS, to be Clinical Instructor in the Diagnosis and Treatment of Ovarian Tumors, June 13, 1892.
PHILIP COOMBS KNAPP, to be Clinical Instructor in Diseases of the Nervous System, June 13, 1892.
ABNER POST, to be Clinical Instructor in Syphilis, June 13, 1892.
JOHN BAKER SWIFT, to be Clinical Instructor in Diseases of Women, June 13, 1892.
GEORGE LINCOLN WALTON, to be Clinical Instructor in Diseases of the Nervous System, June 13, 1892.
FRANCIS SEDGWICK WATSON, to be Clinical Instructor in Genito-urinary Surgery, June 13, 1892.
FREDERICK EDWARD CHENEY, to be Clinical Instructor in Ophthalmoscopy, June 28, 1892.

FRANKLIN DEXTER, to be Demonstrator of Histology, June 13, 1892.
HENRY JACKSON, to be Demonstrator of Bacteriology, June 13, 1892.
WILLIAM MERRITT CONANT, to be Assistant Demonstrator of Anatomy, June 13, 1892.

MYLES STANDISH, to be Assistant in Ophthalmology, May 28, 1892.
VINCENT YARDLEY BOWDITCH, to be Assistant in Clinical Medicine, June 13, 1892.
ALEXANDER BURR, to be Assistant in Bacteriology, June 13, 1892.
WILLIAM SOHIER BRYANT, to be Assistant in Anatomy, June 13, 1892.
JOHN WHEELER ELLIOT, to be Assistant in Clinical Surgery, June 13, 1892.
EDWARD MILLER GREENE, to be Assistant in Histology, June 13, 1892.
FRANK BISHOP HARRINGTON, to be Assistant in Clinical Surgery, June 13, 1892.
HENRY JACKSON, to be Assistant in Clinical Medicine, June 13, 1892.
FRANK BURR MALLORY, to be Assistant in Pathology, June 13, 1892.
GEORGE HOWARD MONKS, to be Assistant in Clinical and Operative Surgery, June 13, 1892.
JOHN CUMMINGS MUNRO, to be Assistant in Anatomy, June 13, 1892.
EDWARD REYNOLDS, to be Assistant in Obstetrics, June 13, 1892.
CHARLES LOCKE SCUDDER, to be Assistant in Clinical Surgery, June 13, 1892.
THOMAS FOSTER SHERMAN, to be Assistant in Diseases of Children, June 13, 1892.

ARTHUR KINGSBURY STONE, to be Assistant in Bacteriology, June 13, 1892.
CHARLES PRATT STRONG, to be Assistant in Gynaecology, June 13, 1892.
CHARLES WENDELL TOWNSEND, to be Assistant in Obstetrics, June 13, 1892.
FRANCIS SEDGWICK WATSON, to be Assistant in Clinical Surgery, June 13, 1892.
ARTHUR HOWARD WENTWORTH, to be Assistant in Chemistry, June 13, 1892.
CHARLES POMEROY WORCESTER, to be Assistant in Chemistry and Secretary of the Medical Faculty, June 13, 1892.
AUGUSTUS SMITH KNIGHT, to be Assistant in Clinical Medicine, September 27, 1892.

SIDNEY ROLAND BARTLETT, to be Instructor in Mechanical Dentistry, June 13, 1892.
HARRY OLIVER BIXBY, to be Instructor in Mechanical Dentistry, June 13, 1892.
ARTHUR WARREN ELDRED, to be Instructor in Mechanical Dentistry, June 13, 1892.
GEORGE HOWARD MONKS, to be Instructor in Surgical Pathology, June 13, 1892.
RICHARD CARL MORITZ, to be Instructor in Mechanical Dentistry, June 13, 1892.
ARTHUR HENRY STODDARD, to be Instructor in Mechanical Dentistry, June 13, 1892.
GEORGE LINCOLN WALTON, to be Instructor in Neurology, June 13, 1892.
JAMES ROBERT WHITE, to be Instructor in Mechanical Dentistry, June 13, 1892.
CHARLES POMEROY WORCESTER, to be Instructor in Dental Chemistry, June 13, 1892.

FREDERICK EUGENE BANFIELD,
EDWIN CARTER BLAISDELL,
WALDO ELIAS BOARDMAN,
FREDERICK BRADLEY,
FOREST GREENWOOD EDDY,
HENRY WEBSTER GILLETT,
ELLIS PROCTOR HOLMES,
LEONARD NUTTEN HOWE,
HENRY ALLEN KELLEY,
EZRA FLETCHER TAFT,
HENRY LAURISTON UPHAM,
} to be Instructors in Operative Dentistry, June 28, 1892.

BENJAMIN HOWARD CODMAN, to be Instructor in Operative Dentistry, September 27, 1892.
WILLIAM PARKER COOKE, to be Instructor in Crown and Bridge Work, September 27, 1892.
DWIGHT MOSES CLAPP, to be Clinical Lecturers in Operative Dentistry, September 27, 1892.
WILLIAM HENRY POTTER, to be Clinical Lecturer in Operative Dentistry, September 27, 1892.
PATRICK WILLIAM MORIARTY, to be Demonstrator in Mechanical Dentistry, June 13, 1892.
JOSEPH TOTTEN PAUL, to be Demonstrator of Operative Dentistry, September 27, 1892.

HENRY ELIASON SEATON, to be Assistant Curator of the Herbarium, September 27, 1892.

NUMBER OF ORDINARY DEGREES IN 1892.

Bachelors of Arts of the Class of 1892	293
Bachelors of Arts out of course	17
Bachelors of Science	7
Bachelor of Science out of course	8
Bachelor of Agricultural Science	1
Bachelor of Divinity	1
Bachelor of Divinity out of course	1
Bachelors of Divinity and Masters of Arts	3
Bachelors of Laws	45
Bachelors of Laws and Masters of Arts	10
Doctors of Medicine	84
Doctors of Medicine and Masters of Arts	9
Doctors of Dental Medicine	14
Doctor of Science	1
Doctors of Veterinary Medicine	6
Masters of Arts	76
Doctors of Philosophy and Masters of Arts	5
Total	576

SCHOOLS EXAMINATION BOARD.

1. The Schools Examination Board of Harvard University * shall consist of the President, four professors, and two principals of schools or academies; it shall have a Secretary, who may or may not be a member of the Board.

2. Under the direction of this Board the regular work of instruction in any school — public, endowed, or private — of a grade to prepare boys for Harvard College or the Lawrence Scientific School, will, on request, be thoroughly examined. An examination may cover the entire work of a school, or only the work in a department or departments to be specified by the person or persons inviting the examination.

3. Examinations may be invited by the Master of a public school with the approval of the Superintendent if there be any; by the Master or Principal of an endowed school or academy with the approval of some appropriate officer of the Board of Trustees; and by the Master of a private school.

4. The examinations shall be directed to ascertaining the organization of the school, its methods of instruction, discipline, and physical training, the proportionate attention given to each study, the quality and range of the books used, and the quality and quantity of the apparatus.

The examinations may or may not cover methods of discipline outside of the school rooms, and shall not cover religious instruction, sanitary condition, or arrangements for boarding and lodging pupils.

* The Board has been constituted as follows: President Eliot; Professor Charles F. Dunbar, Dean of the Faculty of Arts and Sciences; Professor A. S. Hill; Professor Ephraim Emerton; Mr. William C. Collar, Head-Master of the Roxbury Latin School; Mr. Frank A. Hill, Principal of the Cambridge High School; and Assistant Professor Paul H. Hanus. The Secretary of the Board is Professor Paul H. Hanus.

5. A written report shall be made by the Board to the Master or Principal of the school examined. This report shall not be published by either party. It may be used confidentially in the University Committees on Admission, in the Board of Trustees of an endowed school or academy, and by the Superintendent of Schools, if there be any, in the case of a public school. No report or record shall be made concerning the merits or demerits of individual teachers, or the attainments of individual pupils.

6. To make a complete examination of a school which has a comprehensive programme of studies, six examiners will ordinarily be required — one for each of the following subjects, — Classics, Mathematics, Natural Science, History, English, other modern languages; and if the number of pupils be large, assistants for the principal examiners may also be required. The examinations in these different departments need not be simultaneous, and in most cases would not be. For any particular school the Board, if requested, will state beforehand how many examiners and assistants will be needed for either a complete or a partial examination.

7. The examinations will be held at the convenience of the Board at some time between November 1st and June 1st. Applications for such examinations shall be made not later than November 1st. The Board shall be at liberty to decline an invitation to examine or re-examine a school.

8. The school examined shall pay the travelling expenses of the examiners and of their assistants if there be any, $10 for every period of twenty-four hours or fraction thereof that each examiner is absent from the University, and $5 for every period of twenty-four hours or fraction thereof that each assistant is absent from the University. When thoroughly informed of the programme of studies in the school inviting examination, of its number of pupils, of the scope of the examination desired, and of its hour-distance from Boston, the Board will furnish beforehand an approximate estimate of the cost of the examination over and above travelling expenses.

9. A list of the schools examined, with the dates of the examinations and the departments in which they were examined, shall be printed in each successive annual Catalogue, accompanied by a statement that this publication conveys no information in respect to the results of the examination.

All communications on this subject should be addressed to "The Secretary of Harvard University, Cambridge, Mass."

CAMBRIDGE, June 22, 1892.

INSTRUCTIONS TO EXAMINERS.

Each examiner is expected to inform himself beforehand concerning the course of study and daily programme of the school to be examined, so far as they relate to his own subject, and to notify the Secretary, Professor HANUS, of the time of his visit, as soon as he has decided on it. The examinations in different departments will seldom be simultaneous.

Examiners are expected, in all cases, to observe the ordinary work of the school (teaching, examining, experimenting, etc.) in progress; but they will not themselves examine pupils or classes orally, except when requested to do so by the principal or teacher.

Examiners should examine a satisfactory amount of the written work which has been done in the ordinary routine of the school, and they may also, themselves,

propose questions to be answered by the pupils in writing. Such tests should not require more than half an hour in any case, and all mechanical details should be arranged by the teacher of the class.

Each examiner, if he thinks it necessary, may employ an assistant for the examination of written work. To save expense to the school, it is recommended that written work be examined in Cambridge.

It is expected that the examination of a school will be searching, but also that it will be conducted in the most friendly and helpful spirit — the sole aim of the Board being to obtain, through the examiners, the information on which to base useful suggestions for the improvement of the school.

Each examiner is expected to make a full report to the Board. This report should cover the proportionate attention given to the subject in which he has examined a school, and its relative weight in determining the pupil's advancement; the methods of teaching; the quality and range of the books used; the quality and quantity of the apparatus; and the tests applied for teaching purposes or for determining the progress of pupils. The report should also comment on the general atmosphere of the school — whether kindly, inspiring, and refining, or otherwise; and it should further include the examiner's recommendations, based on his experience, concerning the most effective and satisfactory ways of conducting examinations for the Board.

THE VIRGINIA BARRET GIBBS SCHOLARSHIP FUND.

The Virginia Barret Gibbs Scholarship Fund is to be established in connection with the Museum of Comparative Zoölogy at Harvard College, on the following conditions: —

To apply the net income thereof in supporting or assisting to support one or more students who may have shown decided talents in Zoölogy, and preferably in the direction of Marine Zoölogy.

Each person so assisted shall be either a graduate or a student in some department of Harvard University, but not necessarily a candidate for a degree. His studies and researches may be conducted at the Natural History Laboratories of the Museum of Comparative Zoölogy at Harvard College, at the Newport Marine Laboratory, or at such European laboratories or other place on the sea-shore in this country or elsewhere as may be approved by the Faculty of the Museum of Comparative Zoölogy and by the Professors of Zoölogy and of Comparative Anatomy of Harvard University.

Such assistance may be continued to the same student from year to year, so long as he may be recommended by the Faculty of the Museum and the Professors aforesaid; but the appointment must be renewed annually, and only upon satisfactory evidence that the incumbent is fulfilling the purpose of the endowment.

If in the course of one year no students of sufficient ability are promise shall require aid from said fund, or for any reason the whole income of said fund shall not be expended, the surplus is to be added to the principal of the fund.

The President and Fellows are authorized at their discretion to impose such conditions and make such requirements upon the recipient of aid from said fund as will best secure his faithful devotion to the purposes of this foundation.

THE GREENE SMITH COLLECTION OF BIRDS.

PETERBOROUGH, N. Y., August 18, 1892.

WILLIAM BREWSTER, Esq.: —

Dear Sir, — I wish to place the collection of birds, left by my husband, where it will be safe, well cared for, kept intact, as far as practicable, and made use of by students of ornithology; and where it may remain a monument to the life-work of Greene Smith.

I will give the collection (with a few exceptions to be named hereafter) to the Mnseum of Comparative Zoölogy at Cambridge Mass., on the following conditions: —

1st. That the North American Collection shall practically replace the present North American Collection of the Museum, and shall be kept together as far as possible; each specimen to be labelled conspicuously with the name of Greene Smith.

2d. The Museum shall be allowed to make future additions to the collection; but it shall be privileged to discard *only* such specimens as are positively bad.

3d. Any part of the collection which the Museum may at any time discard shall be returned to me or my heirs.

4th. The Museum, at its own expense, is to pack and transfer the collection within the next sixty days.

From the Collection of North American Birds I reserve one specimen, No. 886. I also reserve the foreign specimens, excepting the case of Hummingbirds.

Yours very truly,

ELIZABETH F. SMITH.

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TREASURER'S STATEMENT.

1892.

TREASURER'S STATEMENT.

To the Board of Overseers of Harvard College: —

The Treasurer of the College submits the Annual Statement of the financial affairs of the University, for the year ending July 31, 1892, in the usual form.

The Funds separately invested, with the income thereof, are as follows: —

UNIVERSITY.	Principal. July 31, 1892.	Income.
George B. Dorr Fund,		
University Houses and Lands,	$115,966.56	$5,972.80
Francis E. Parker Fund,		
University Houses and Lands,	113,817.44	5,861.58
John C. Gray Fund,		
University Houses and Lands,	25,000.00	1,287.50
Joseph Lee Fund,		
University Houses and Lands,	10,000.00	515.00
Insurance and Guaranty Fund,		
University Houses and Lands,	141,638.74	7,294.41
Stock Account (part of),		
University Houses and Lands,	23,029.55	1,510.75
John Cowdin Fund,		
Real Estate in Boston,	22,000.00	1,697.64
Walter Hastings Fund (part of),		
Real Estate in Cambridge,	20,000.00	55.17
Edwin Conant Bequest (part of),		
$3,000 Naumkeag Street R. R. 5's,	3,039.17	
60 shares National Webster Bank	5,792.50	
10 " Blackstone National Bank of Uxbridge,	947.50	
COLLEGE.		
Stoughton Scholarship (part of),		
Real Estate in Dorchester,	1,294.30	
Pennoyer Scholarships (part of),		
Pennoyer Annuity in England,	4,444.44	142.25
Jonathan Phillips' Gift,		
Mortgages,	10,000.00	500.00
Samuel Ward's Gift,		
Ward's (Bumkin) Island, Boston Harbor,	1,200.00	50.00
Scholarships of the Class of 1856,		
$10,000 Frem., Elkhorn & Mo. Valley R. R. 6's,	10,000.00	600.00
Amounts carried forward,	$508,170.20	$25,486.60

Amounts brought forward, . . .	$508,170.20	$25,486.60
LIBRARY.		
Charles Minot Fund (part of),		
$60,000 Buffalo, Bradford, & Pittsb. R. R. 7's,	60,000.00	4,200.00
Ichabod Tucker Fund (part of),		
Policy of Mass. Hospital Life Insurance Co., . .	5,000.00	200.00
Edwin Conant Fund (part of),		
Mortgage, ...	20,000.00	
Savings Banks deposits (paid during year), . . .		227.82
MUSEUM OF COMPARATIVE ZOÖLOGY.		
Agassiz Memorial Fund (part of),		
Advances for new building, &c., ...	22,313.73	1,205.69
OBSERVATORY.		
Uriah A. Boyden Fund (part of),		
35 shares East Boston Ferry Co., ...	1.00	
SPECIAL FUNDS.		
Bussey Trust,		
Real Estate, ...	413,092.80	19,006.80
Robert Troup Paine Fund (accumulating),		
$35,000 Massachusetts 5's, ...	39,655.00	1,675.00
Fund of the Class of 1834,		
Policy of Mass. Hospital Life Insurance Co., . .	1,000.00	40.00
Fund of the Class of 1853,		
Policies of Mass. Hospital Life Insurance Co., . .	3,625.00	145.00
George William Sawin Fund,		
12 shares Boston & Providence R. R., ...	3,063.00	120.00
Charles L. Hancock Bequest (part of),		
Mortgage, ...	47,197.00	
Real Estate in Chelsea, ...	1,000.00	
Price Greenleaf Fund. The total amount of this Fund is $717,893.71, which is invested as follows: —		
$43,500 Consolidated R. R. of Vermont 5's, ...	38,280.00	2,175.00
12,200 Rutland R. R. 6's, ...	12,932.00	732.00
37,200 Rutland R. R. 5's, ...	34,968.00	1,860.00
1,000 Cheshire R. R. 6's, ...	1,110.00	60.00
46,500 Ogdens. & L. Champ. R. R. 6's, ...	46,500.00	2,790.00
23,800 Ogdens. & L. Champ. R. R. income 6's, . .	10,234.00	
3,000 Boston & Lowell R. R. 7's, (paid during yr.),		210.00
3,000 Chicago, Burl. & Quincy R. R. 4's, ...	2,880.00	120.00
4,000 Chicago, Burl. & Northern R. R. 5's, . . .	4,000.00	200.00
23,000 Union Pacific Railway 6's, ...	25,990.00	1,380.00
290 shares Northern R. R. (N. H.), ...	29,290.00	1,740 00
800 " Rutland " preferred, ...	28,000.00	3,200.00
40 " Ogdens. & L. Champ. R. R., ...	680.00	
317 " Boston & Maine "	48,746.21	2,694.50
Amounts carried forward, . .	$1,407,727.94	$69,470.41

Amounts brought forward, . .	$1,407,727.94	$69,470.41
360 shares Boston & Lowell R. R., ...	46,800.00	2,520.00
237 " Fitchburg R. R. preferred, ...	22,395.33	948.00
355 " Old Colony "	63,190.00	2,272.00
142 " Chicago, Burl. & Quincy R. R., . . .	19,045.75	674.50
20 " N.Y. Central & Hudson River " . . .	2,260.00	100.00
292 " Michigan Central " . . .	28,032.00	1,606.00
122 " Union Pacific Railway, ...	7,161.40	
52 " West End Street Railway, ...	4,330.00	208.00
$50,000 Metropolitan Tel. & Tel. Co. 1st M. 5's, . .	49,750.00	2,500.00
25,000 New England " " " " 6's, ...	25,593.75	1,500.00
50,000 Chic. Junc. R'y & Union Stock Yards 5's, .	47,000.00	1,884.10
300 shares N.Y., N. Haven & Hart. R.R., ...	67,250.00	2,750.00
Lawrence Manufacturing Co.'s Note, ...	30,000.00	1,500.00
Mortgage (paid during year), ...		261.11
Deposit with New England Trust Co., ...	21,475.27	424.96
Totals, ...	$1,842,011.44	$88,619.08

The other Funds are invested as a whole. The general investments are stated in detail on pages 22 and 23 of this report, but the usual summary statement of them, with the income thereof, is as follows: —

Investments.	Principal, August 1, 1891.	Principal, July 31, 1892.	Income.
Notes, Mortgages, &c., ...	$1,004,646.97	$380,000.00	$41,952.94
Railroad Bonds and Premiums, . .	2,415,113.31	2,152,158.62	105,588.70
Railroad Stock, ...	154,871.51	177,371.51	6,875.00
Sundry Bonds, ...	299,170.00	443,205.00	17,356.95
Manufacturing Stock, ...	38,122.29	38,122.29	4,220.00
Real Estate, ...	1,312,610.63	2,305,339.28	102,062.78
Brattle Street Reversion (1918), . .	1,000.00	1,000.00	
Advances to Botanical Dept.	6,905.57	7,250.85	345.28
" " Bussey Trust, ...	37,513.76	37,513.76	1,875.69
" " Dining Hall Association,	22,732.16	21,232.16	1,363.93
" " University Lands, . . .	30,000.00	30,000.00	1,500.00
" " Observatory, ...	3,676.31	4,248.27	183.82
" " Lawn Tennis Association,	250.00	200.00	13.80
" " School of Veterinary Medicine, ...	16,518.94	19,158.65	991.14
Baring Brothers & Company, . . .	947.83	1,122.55	32.47
Term Bills due in October, ...	118,501.59	142,429.47	
Term Bills overdue, ...	2,243.12	2,415.08	
Cash in Suffolk National Bank, . . .	32,435.52	22,323.61	
Cash in hands of Bursar, ...	18,131.57	16,548.23	
Check in Treasurer's Office, for deposit, ...	133.06		
Cash in National Union Bank, . . .		194,594.21	1,256.16
Totals of general investments,	$5,515,524.14	$5,996,233.54	$285,618.66
Totals of special investments,	1,784,323.96	1,842,011.44	88,619.08
Amounts, . . .	$7,299,848.10	$7,838,244.98	$374,237.74

During the year large investments have been made in productive real estate on Washington St., in Boston, chiefly with money received from the payment of corporation notes which were taken in the previous year as a temporary investment, and from the sale of railroad bonds. The gain over cost from the sale of railroad bonds, amounting to $28,660.50, was credited to the account of Gains and Losses for General Investments.

The account of Advances for Railroad Bond Premiums has been credited with the sum of $19,993.00 as the fair yearly repayment from income on account of premiums advanced; and the sum of $6305.60 has been credited to University Houses and Lands as a repayment to capital from a wasting security.

The net income of the general investments ($285,618.66) has been divided at the rate of $5\frac{15}{100}$ per cent among the Funds to which they belong, after allowing four per cent on $30,000.00 of the Bruce Fund, and to the balance of that Fund and to certain other temporary Funds and balances a special rate of three per cent. The fraction, which was $33.32, has been placed as usual to the credit of the University account.

The rate of income compared with that for 1890–91 shows no change.

The following table shows the income available for the departments dependent upon the College proper, and the expenditures in those departments: —

Interest on Funds for			
University Salaries and Expenses, ...		$40,011.10	
Library Salaries and Expenses (not books), . .		24,978.36	
College Salaries and Expenses, ...		40,298.56	
Gymnasium, and repairs on College buildings, .		none.	
College Term Bills, ...		283,260.85	
Sundry receipts, as follows: —			
Gifts for Salaries and Expenses, . .	$1,572.98		
Rents, ...	796.00		
Laboratory and other fees, ...	26,567.06		
Sales of catalogues, pamphlets, etc.,	2,272.02		
		31,208.06	
			$419,756.43

Expended for		
University Salaries and Expenses,	**$60,765.20**	
Library Salaries and Expenses (not books),	**30,272.66**	
College Expenses,	**88,609.67**	
College Salaries, for instruction,	**216,637.97**	
Gymnasium and Athletic Building Expenses,	**10,131.97**	
Repairs and insurance on College buildings not valued on Treasurer's books,	**19,771.84**	
		426,189.31
Balance, showing deficit for the year, which has been charged to Stock Account,		**$6,432.88**

For the University, College, and Library accounts there has been a large increase of income, chiefly from more tuition fees, but heavy outlays for instruction and for the repair and alteration of buildings have caused a deficit of $6432.88, in spite of the use for current expenses of the whole income of the Stock Account. For 1890–91 the deficit was only $714.68, after using the income of the Stock Account towards repayment of previous deficits.

The Divinity School has had a surplus of $368.74, as the result of less income and a smaller expenditure. For 1890–91 the surplus was $1410.45.

The Law School has had a surplus of $18,314.14, due to more tuition fees, and in spite of increased expenses. For 1890–91 the surplus was $11,635.88.

The Medical School, with more tuition fees, has had a surplus of $22,446.43. For 1890–91 the surplus was $5216.82.

For the Dental School, expenses as well as receipts have been larger, and the surplus has been $2864.85. For 1890–91 the surplus was $3698.14.

For the Lawrence Scientific School a larger income from tuition fees has been mostly used for expenses. The surplus has been only $1498.72, but the income of the Professorship of Engineering was added to its capital as that professorship was vacant. For 1890–91 the surplus was $2324.56.

The Museum of Comparative Zoölogy has spent all the income of its restricted Funds as required by the conditions of gift, and has used the surplus income of the Agassiz Memorial Fund as heretofore to pay interest upon, and to repay in part, the principal of the advances from the

Memorial Fund, which were used to extend the Museum building and to buy fossils.

For the general account of the Observatory there has been a deficit of $571.96. For 1890–91 the deficit was $518.28. From the income of the Boyden Fund large outlays have been made for the expedition to Peru; and nearly all the gifts from Mrs. Draper for current use have been spent during the year upon the special research work of the Draper Memorial.

The Bussey Institution, with less income from the Bussey stores, and a larger expenditure, has had a surplus of $875.96. For 1890–91 the surplus was $2918.72.

The Veterinary School has had more income from tuition fees and from its Hospital and Forge; but much larger expenses, chiefly for salaries and wages, have caused a deficit of $2639.71. For 1890–91 there was a surplus of $329.90.

Gifts have been received during the year as follows: —

GIFTS TO FORM NEW FUNDS OR INCREASE OLD ONES.

From the estate of Charles L. Hancock, $71,104.27, in cash, securities, and land, being the net amount received in 1891–92 on account of his residuary bequest. Mr. Hancock directs "that the Hancock Professorship shall be first amply provided for from time to time, and then the residue shall be applied to the general purposes of the College."

From the estate of Daniel Treadwell, $1000 additional, on account of Professor Treadwell's residuary bequest for the use of the College Library.

From the Class of 1835, $500, as an addition to the Class of 1835 Scholarship Fund.

From Miss Anna C. Lowell, $1000 additional, for the Lowell Fund for a Botanic Garden.

From Miss Belinda L. Randall, in accordance with the wishes of her brother, the late John Witt Randall, his large collection of engravings; also, $30,000, to establish the John Witt Randall Fund, the income of which is to be used so far as it may be needed, for the care and preservation of his engravings, and the surplus income at the discretion of the President and Fellows for the general purposes of "the

department of Engraving and allied branches of the Fine Arts."

From the estate of Edwin Conant, his bequest of $5000, for the Divinity School; securities and cash amounting to $27,700, his bequest for the Library; and securities and cash amounting to $95,365.11, on account of his unrestricted residuary bequest.

From the estate of Mrs. Elizabeth Fogg, her collection of paintings and artistic objects, and the sum of $198,000, in part payment of her bequests of $220,000, for building and maintaining the "William Hayes Fogg Art Museum of Harvard College."

From an anonymous friend of the Botanic department, through George L. Goodale, $2000, to be added to the Herbarium Fund.

From George A. Gardner, $500, as part of a permanent fund, the income of which shall be used to provide photographs and photographic slides for the department of Geology.

Additional subscriptions to raise the standard of Medical Education, paid to August 1, 1892, from

Frederick L. Ames	$1,000	John E. Thayer	$500
William Endicott, Jr. . . .	1,000	Nathaniel Thayer	1,000
Augustus Hemenway . . .	500	Estate of Miss Anne Wigglesworth	500
H. H. Hunnewell	1,000		$6,000
E. V. R. Thayer	500		

From Edward Russell, $200, to increase the Scholarship founded by him.

From an anonymous friend, $2000, to found the Julius Dexter Scholarship.

The total amount of these gifts for capital account is $440,369.38, as is also stated on page 18 of this report.

GIFTS FOR IMMEDIATE USE.

From Mrs. Henry Draper, of New York, an additional sum of $10,000, to be expended by the Director of the Observatory in prosecuting the researches in the photography of stella spectra, with which the late Dr. Henry Draper's name is honorably associated.

From Jacob H. Schiff, $250, for the encouragement of the study of Semitic languages, and $350, for a scholarship for 1891–92 in the Semitic department.

From Miss Catherine W. Bruce, $500, for the Observatory, for the publication of certain observations.

From Miss Lucy Ellis, an additional gift of $1000, for the Physiological department of the Medical School.

From an anonymous friend, his annual gift of $500, to increase the salary of the Professor of Entomology.

From John Lowell, on behalf of himself and Mrs. Lowell, $400, the seventh yearly payment for the support of two Scholarships to be known as the George Emerson Lowell Scholarships.

From Andrew P. Peabody, $200 additional, for prizes in the Semitic department for the academic year 1892–93.

From the Dante Society, $80 additional, for the purchase of books for the Dante collection.

From John O. Sargent, $100 additional, for the Sargent prize for 1891–92.

From Miss Georgiana Welles Sargent, $100, for the Sargent prize for 1892–93.

Through P. B. Marcou, $10, the amount of contributions for books for the French department.

From Mrs. C. M. Barnard, $600, her ninth yearly payment for the Warren H. Cudworth Scholarships.

From Evan Henry Hopkins, $160, as a repayment with interest of Scholarship money received by him while a student in the Law School.

From Winslow Warren Sever, $22.98, for expenses on the Sever portraits given by him to the College.

From William G. Farlow, his annual gift of $450, towards the salary of the Assistant in the Cryptogamic Herbarium.

From an anonymous friend of the Botanic department, through George L. Goodale, $2500, for the Botanic Garden.

From Henry Lee, $1000, for the Botanic Garden and Botanic Museum.

From Miss Lucy Ellis, $250, for the use of the Professor of Pathology in 1892–93.

From Charles H. Dalton, $250, towards the salary of the Associate Professor of Physiology for 1892–93.

From H. H. Hunnewell, $30,286.51, for a Museum building at the Arnold Arboretum.

Subscriptions for the Arnold Arboretum, paid to August 1, 1892, from

F. L. Ames	$8,333.33	John L. Gardner	$2,000.00
Arthur W. Blake	1,000.00		
			$11,333.33

Subscriptions towards the salary of the new Professor of Experimental Psychology, paid to August 1, 1892, from

Henry Adams	$200	Francis L. Higginson	$1,000
W. S. Bigelow	1,000	James J. Higginson	100
Edmund Dwight	100	Miss Anna C. Lowell	200
John M. Forbes	500	A. Lawrence Lowell	100
W. H. Forbes	100	W. Powell Mason	300
Mrs. Mary Hemenway	500	Henry L. Peirce	500
			$4,600

Additional subscriptions for the present use of the Herbarium, paid to August 1, 1892, from

Frederick L. Ames	$500	Henry Lee	$500
B. P. Cheney	500	Augustus Lowell	250
A friend	500	Nathaniel C. Nash	250
H. H. Hunnewell	500	F. H. Peabody	50
Nathaniel T. Kidder	500		
			$3,550

Additional subscriptions towards the construction of a fire-proof building for the storage of valuable manuscripts and photographic plates at the Observatory, paid to August 1, 1892, from

E. Pierson Beebe	$100	Samuel C. Lawrence	$100
Miss Helen C. Bradlee	100	W. Powell Mason	200
Martin Brimmer	300	Robert Treat Paine	300
A friend	500	George F. Parkman	500
John M. Forbes	200	Stephen Salisbury	100
John L. Gardner	500	Thayer Brothers	200
Mrs. John L. Gardner	1,000	Samuel D. Warren	200
John E. Hudson	100	William F. Weld	100
			$4,500

Subscriptions for illustrated lectures in the Latin and Greek departments, paid to August 1, 1892, from

George C. Brackett	$10	Members of the New York Harvard Club	$100
George G. Crocker	10	William R. Page	15
R. H. Fitz	10	Theophilus Parsons	25
A friend of the Latin Department	100	W. L. Richardson	50
John E. Hudson	100	Frank Russak	20
Walter Hunnewell	50		
			$490

Additional subscriptions from graduates of the Dental School, to be applied towards the immediate wants of the School, paid to August 1, 1892, from

Charles H. Abbot	$25	Frank Perrin	$10
C. A. Brackett	25	William H. Potter	5
Edwin P. Bradbury	25	James Shepherd	5
Thomas Fillebrown	20	Charles Wilson	10
P. B. Laskey	5		$130

Through Louis D. Brandeis, the third annual gift of $1000, from an anonymous friend of the Law School, to defray the expenses of the course in the Peculiarities of Massachusetts Law and Practice for the year 1892–93.

From George W. Wales, $200, for books for the Library, in continuance of former gifts for the same purpose.

From an anonymous friend, $100, to be added to the balance of Scholarships and Beneficiary money returned.

From Henry C. Warren, $750 additional, "to be applied at the discretion of Professor C. R. Lanman to the printing of Hindoo texts and of translations from the same, and to the purchase of Hindoo manuscripts" for the Sanskrit department.

From F. H. Peabody, $500 for printing in the Botanical department.

The total amount of these gifts for immediate use is $76,162.82, as is also stated on page 18 of this report.

The estate, No. 38 Quincy Street, Cambridge, containing about twenty-two thousand feet of land with the dwelling house thereon, was given to the College within the year by Mr. Henry C. Warren. This estate does not belong to the account called University Houses and Lands, and has not yet any valuation in the College books of account.

EDWARD W. HOOPER, *Treasurer.*

Boston, December 30, 1892.

ACCOUNTS.

General Statement of Receipts and Disbursements for the year ending

INCOME.

Interest on notes, mortgages, nd advances,		$51,725.87
" " Massachusetts 5's,		1,675.00
" " Policies Mass. Hospital Life Insurance Co.,		385.00
" " Deposit with New England Trust Co.,		444.25
" " Metropolitan Telephone & Telegraph Co. 5's,		7,500.00
" " Chicago Junc. Railways & Union Stock Yards Co. 5's,		8,241.05
" " Deposit with National Union Bank,		1,256.16
" " " " Worcester Savings Banks,		227.82
" " New England Telephone & Telegraph Co. 6's,		7,500.00
" " Railroad Bonds (after deducting $19,993.00 for sinking premiums).		
Buffalo, Bradford & Pittsburg 7's,	4,200.00	
Burlington & Mo. River in Neb. 6's,	17,984.00	
Atchison & Nebraska 7's,	8,731.82	
Kan. City, St. Jos. & Council Bluffs 7's,	1,438.42	
Fort Scott, So. E. & Memphis 7's,	7,071.00	
Lincoln & No. Western 7's,	957.63	
Eastern Railroad sterling 6's,	4,265.03	
Fremont, Elkhorn & Mo. Valley 6's,	600.00	
Chicago, Burlington & Quincy 4's,	120.00	
Eastern Railroad 6's,	18,888.00	
Consolidated R. R. of Vermont 5's,	2,175.00	
Rutland Railroad 6's,	732.00	
Rutland Railroad 5's,	1,860.00	
Cheshire Railroad 6's,	60.00	
Union Pacific 6's,	1,380.00	
Chicago, Burlington & Quincy 5's,	700.00	
Ogdens. & Lake Champlain 6's,	2,790.00	
Boston & Lowell 7's,	210.00	
Chicago, Burlington & Northern 5's,	200.00	
Chicago, Burlington & Quincy 7's,	28,071.56	
Union Pacific R'y Omaha Bridge 5's,	8,555.00	
Chicago, Burlington & Quincy conv. 5's,	5,000.00	
Chicago & No. W., Madison Exten. 7's,	1,621.94	
Minneapolis Union 5's,	2,304.30	119,915.70
Dividends on Stocks.		
Amoskeag Manufacturing Co.,	$1,200.00	
Merrimack " "	1,020.00	
Pacific Mills,	2,000.00	4,220.00
Chicago, Burlington & Quincy R. R.,	674.50	
Rutland R. R., preferred,	3,200.00	
Boston & Maine R. R.,	2,694.50	
Old Colony R. R.,	2,272.00	
New York Cent. & Hud. River R. R.,	100.00	
Michigan Central R. R.,	1,606.00	
Amounts carried forward,	$10,547.00	$203,090.85

by the Treasurer of Harvard College,
July 31, 1892.

EXPENSES.

Paid to account of Expenses in the

University, as per Table I. (page 40).		
Fellowships and Scholarships,	$14,283.84	
Prizes,	1,000.00	
Salaries and other expenses,	57,765.20	
Sundry payments from special Funds,	5,328.03	$78,376.57
College, as per Table II. (page 43).		
Salaries for instruction,	216,637.97	
Repairs and insurance on College Edifices, not valued on Treasurer's books,	19,771.84	
General expenses,	53,932.26	
Scholarships,	28,911.68	
Beneficiaries,	18,232.56	
Prizes,	984.78	
Botanic Garden and Botanic Museum,	9,778.75	
Herbarium,	5,314.68	
Hemenway Gymnasium,	9,284.82	
Carey Athletic Building,	847.15	
Jefferson Physical Laboratory,	3,485.69	
Books for special departments,	1,792.88	
Apparatus, &c., from special gifts,	2,608.50	
Account of Professor **Cooke's** addition to the University Museum (furnishing),	436.66	
Printing, from Publication Funds,	1,695.24	
Summer Schools,	8,224.19	
Appleton Chapel,	8,441.06	
Appropriations for collect'ns and laboratories,	17,881.94	408,262.65
Library, as per Table III. (page 50).		
Books,	16,566.73	
Salaries and other expenses,	30,272.66	46,839.39
Divinity School, as per Table IV. (page 52).		
Salaries and other expenses,	25,682.18	
Scholarships and Beneficiaries,	1,935.00	27,617.18
Law School, as per Table V. (page 54).		
Salaries and other expenses,		51,077.90
Medical School, as per Table VI. (page 55).		
Salaries, Laboratory expenses, &c.,	54,588.81	
Scholarships and Beneficiaries,	2,062.50	
Fees repaid to Instructors,	3,077.50	
Boylston Medical Prizes,	72.40	
Warren Anatomical Museum,	381.15	
Amounts carried forward,	$60,182.36	$612,173.69

General Statement of Receipts and Disbursements for the year ending

INCOME (*continued*).

Amounts brought forward, . . .	$10,547.00	$203,090.85
Dividends on Stocks (*continued*).		
Boston & Lowell R. R., ...	2,520.00	
Northern R. R. (N. H.), ...	1,740.00	
West End Street Railway Co., ...	208.00	
Fitchburg R. R., preferred, ...	948.00	
N. Y., New Haven & Hartford R. R., .	9,625.00	
Boston & Providence R. R., ...	120.00	25,708.00
Real Estate, from rents, &c. (gross receipts).		
Cambridge (University Houses and Lands), after deducting $6,305.60 for capital, ...	32,362.86	
Boston (general investments), after deducting $4,703.15 for capital, ...	135,208.18	
Bussey real estate, ...	35,141.96	
Sundry estates, ...	12,164.13	214,877.13
Term Bills.		
College, as per Table II., ...	283,260.35	
Divinity School, as per Table IV., ...	5,623.82	
Law School, as per Table V., ...	53,100.00	
Medical School, as per Table VI., ...	81,985.77	
Dental School, as per Table VII., ...	8,246.67	
Lawrence Scientific School, as per Table VIII., .	19,171.95	
Bussey Institution, as per Table X., ...	1,246.00	
School of Veterinary Medicine, as per Table XI.,	3,431.00	456,065.56
Sundries.		
William Pennoyer Annuity, ...	142.25	
Asa Gray's copyrights, ...	2,817.33	
Trustee of **Thayer** Scholarships, ...	3,000.00	
Trustees of **Edward Hopkins**, ...	231.77	
Use of Library by resident graduates and others,	135.00	
Sale of grass, wood, old material, etc., ...	5,347.08	
" " old examination papers, ...	3.21	
" " time signals from Observatory, ...	2,327.29	
" " tickets to Commencement Dinner, . . .	585.00	
" " books, pamphlets, catalogues, &c., . . .	1,834.60	
Board of horses, cattle, &c. at Bussey Institution,	2,058.87	
Repayment of advances for microscopes, ...	226.00	
Repayment of advances for publishing observa'ns,	500.00	
Unexpended appropriations returned	419.17	
Laboratory instruction to Dental and Veterinary students, ...	684.00	
Use of lockers at Gymnasium and Athletic Build'g,	2,839.00	
Fees for admission examinations, &c., ...	1,288.00	
Fees in Infirmary and Laboratory, Dental School,	5,187.40	
Fees from Veterinary Hospital and Forge, . . .	13,457.45	
Amounts carried forward, ...	$48,083.42	$899,741.54

by the Treasurer of Harvard College,
July 31, 1892.

EXPENSES (*continued*).

Amounts brought forward, . . .		$60,182.36	$612,173.69
J. Ingersoll Bowditch Fund, ...		191.31	
Ellis Gift, ...		446.25	
General expenses, ...		13,453.73	74,273.65
Dental School, as per Table VII. (page 57).			
Salaries and other expenses, ...			11,678.91
Lawrence Scientific School, as per Table VIII. (page 58).			
Salaries and other expenses, ...		35,978.94	
Museum of Comparative Zoölogy, ...		29,871.77	65,850.71
Observatory, as per Table IX. (page 59), ...			56,713.10
Bussey Institution, as per Table X. (page 60),		12,354.00	
Arnold Arboretum, as per Table X. (page 60),		49,866.58	62,220.58
School of Veter'y Medicine, as per Table XI. (page 61), .			25,637.45
Real Estate, expenses.			
Insurance.			
Cambridge, ...	$50.00		
Boston (general investments), . .	4,438.56		
Bussey real estate, ...	1,074.84	5,563.40	
Taxes.			
Cambridge, ...	2,351.35		
Boston (general investments), . .	17,658.90		
Bussey real estate, ...	7,675.11		
Sundry estates, ...	302.40	27,987.76	
Interest.			
Bussey real estate (on advances), ...		1,875.69	
Repairs, improvements, care, cleaning and sundries.			
Cambridge, ...	7,519.97		
Boston (general investments), . .	11,047.94		
Bussey real estate, ...	2,100.25	20,668.16	
Heating and hoisting for **Bussey** stores, including repairs and renewal of apparatus, ...	5,550.27		
Less for sales of heat and power, .	2,143.00	3,407.27	59,502.28
Annuities.			
Bussey, ...		$6,109.31	
Gore, ...		300.00	
Lucy Osgood, ...		420.00	
Bemis, ...		2,560.64	
Gurney, ...		1,000.00	
George William Sawin, ...		120.00	10,509.95
Amount carried forward, ...			$978,560.32

General Statement of Receipts and Disbursements for the year ending

INCOME (*continued*).

Amounts brought forward, . .		$48,083.42	$899,741.54
Sundries (*continued*).			
Subscribers to Veterinary Hospital, ...		1,090.00	
Fees for Summer Courses, ...		10,662.50	
Laboratory fees: Chemistry	$7,128.81		
Physics	2,082.50		
Natural History . .	2,076.25		
Philosophy	355.00	11,642.56	71,478.48
Sundry gifts for immediate use, see page 12, ...			76,162.82
Total amount of income, ...			$1,047,382.84

RECEIPTS EXCLUSIVE OF INCOME.

GIFTS.

Edward Russell Scholarship (additional), . .	$200.00	
Lowell Fund for a Botanic Garden (additional),	1,000.00	
Herbarium Fund "	2,000.00	
Medical School Subscription Fund "	6,000.00	
Daniel Treadwell Fund "	1,000.00	
Class of 1835 Scholarship "	500.00	
Julius Dexter Scholarship, ...	2,000.00	
Elizabeth Fogg Bequests, ...	198,000.00	
Edwin Conant Bequests, ...	128,065.11	
Charles L. Hancock Bequest, ...	71,104.27	
John Witt Randall Fund, ...	30,000.00	
George A. Gardner Fund, ...	500.00	440,369.38

SALES.

$13,600 Burl. & Mo. R. (Neb.) R. R. 6's (paid off),	13,600.00	
3,000 Ft. Scott, So. E. & Memp. R. R. 7's "	3,150.00	
3,000 Boston & Lowell R. R. 7's "	3,000.00	
224,000 Chic. Burl. & Quincy R. R. Consol. 7's,	273,491.94	
50,000 Kan. City, St. Jos. & C. Bluffs R. R. 7's,	61,250.00	
25,000 Lincoln & No. Western R. R. 7's, . . .	31,312.50	
150,000 Atchison & Nebraska R. R. 7's, ...	185,250.00	
60,000 Chicago, Burl. & Quincy R. R. 5's, . .	60,600 00	
2,000 City of St. Paul 4½'s, ...	2,144.00	
2,000 " " " " 5's, ...	2,269.17	
2,000 " " Somerville 5's, ...	2,064.17	
1,000 St. Louis County Park 6's, ...	1,197.00	
2,000 Watervliet Turnpike & R. R. 6's, . . .	2,214.67	
2,000 Cambridge Street R. R. 5's, ...	2,149.72	
2,000 Metropolitan R. R. 5's, ...	2,129.17	
4,000 United States 4's, ...	4,740.00	
Amounts carried forward, . .	$650,562.34	$1,487,752.22

by the Treasurer of Harvard College,
July 31, 1892.

EXPENSES (*continued*).

Amount brought forward, ...		$978,560.32
Class Funds.		
Paid the Secretary of the **Class of 1834**, . . .	$40.00	
" " " " **1853**, . . .	145.00	185.00
Sundry payments from income.		
From **Gray** Fund for Engravings, to the Treasurer of the Museum of Fine Arts, ...	823.85	
From **Daniel Williams** Fund for the benefit of the Herring Pond and Mashpee Indians, . . .	825.11	
From **Sarah Winslow** Fund, to the Minister and Teacher at Tyngsborough, Mass., ...	241.16	
From **Huntington Frothingham Wolcott** Fund, to the Treasurer of the Peabody Museum of American Archaeology and Ethnology, . . .	500.00	
From **John Witt Randall** Fund, expenses on account of the **Randall** collection, ...	47.35	2,437.47
Total amount of expenses, ...		$981,182.79

INVESTMENTS AND SUNDRY PAYMENTS.

Chic. Junc. R'ys & Union Stock Y'ds 5's,	$75,000 cost,	$70,110.00	
Chic. & No. West'n, Madison Ex. R.R. 7's,	100,000 "	132,108.75	
Minneapolis Union R'y 5's, ...	100,000 "	104,000.00	
General Electric Co. 5's, ...	100,000 "	97,425.00	
Massachusetts 5's, 1894 (**Robert Troup Paine Fund**), ...	1,500 "	1,560.00	
Paid for accrued interest and expenses on the above bonds, ...		4,153.96	
Great Northern R. R. 4's, ...	$100,000 cost,	90,501.00	
Eastern R. R. sterling 6's, ...	£5,000 "	30,101.25	
550 shares N.Y., N. Haven & Hartford R.R. (balance),		27,500.00	557,459.96

Property received as part of the residuary bequest of **Edwin Conant.**

$2,000 City of St. Paul 4½'s and interest, ...		$2,144.00	
2,000 " " " " 5's " "		2,269.17	
2,000 " " Somerville 5's " "		2,064.17	
1,000 St. Louis County Park 6's and interest, . . .		1,197.00	
2,000 Watervliet Turnpike & R. R. 6's and interest,		2,214.67	
2,000 Cambridge Street R. R. 5's	" "	2,149.72	
2,000 Metropolitan R. R. 5's	" "	2,129.17	
4,000 United States 4's	" "	4,740.00	
1,000 City of Fall River 6's	" "	1,120.00	
2,000 " " Minneapolis 4½'s	" "	2,097.50	
Amounts carried forward, . .		$22,125.40	$1,538,642.75

General Statement of Receipts and Disbursements for the year ending

RECEIPTS EXCLUSIVE OF INCOME (*continued*).

Amounts brought forward, . .	$650,562.34	$1,487,752.22
$1,000 City of Fall River 6's, ...	1,120.00	
2,000 " " Minneapolis 4½'s, ...	2,097.50	
2,000 Chicago, Burlington & Quincy R. R. 4's, .	1,895.00	
1,000 City of Toledo 8's, ...	1,137.92	
3,000 Massachusetts 5's, ...	3,215.41	
2,000 City of Omaha 5's.	2,085.00	
1,360 Central Iowa R'y coupon debt certificate, .	132.41	
70 shares Boston & Albany R. R., ...	14,465.75	
11 " Worcester & Nashua, R. R., . . .	1,399.75	
37 " Providence & Worcester R. R., . .	9,333.25	
33 " Manchester Mills, ...	4,816.75	
66 " Clev. Cinn. Chic. & St. Louis R. pf'd,	6,344.25	
19 " " " " " " " com.,	1,282.05	
15 " Worcester Gas Light Co., ...	2,426.25	
56 " Northern Pacific R. R. preferred, .	3,080.00	
10 " Fitchburg National Bank, ...	1,477.50	
68 " Central National Bank, Worcester,	9,843.00	
Coupons Naumkeag St. Railway 5's, ...	75.00	
Cheshire R. R. dividend of capital, ...	146.00	
Rights Chic. Burl. & Quincy R. R., ...	95.85	
Deposits in Worcester Savings Banks withdrawn,	7,699.88	724,730.86
SUNDRIES.		
From Dining Hall Association, to reduce debt, .	1,500.00	
From Lawn Tennis " " "	50.00	
Advances to premiums on $1,765,783 R.R.B, rep'd,	19,993.00	
" " accrued interest and expenses on Bonds repaid, ...	3,832.71	
" " improvements on Gray and Andrews Estates repaid, ...	4,703.15	
University Houses and Lands, repaym't to capital,	6,305.60	
Repayment of advances to Mus. of Comp. Zoöl.,	1,800.06	38,184.52
Notes and Mortgages paid off, ...	1,193,000.00	
Less invested in notes of Manufacturing Co's, .	525,000.00	668,000.00
Balance, August 1, 1891.		
Cash in Suffolk National Bank, ...	$32,435.52	
Cash in New England Trust Co., ...	16,733.42	
Check in Treasurer's Office, for deposit, . .	133.06	
Cash in hands of Charles F. Mason, Bursar,	18,131.57	
Term Bills due October, 1891, ...	118,501.59	
" " overdue, ...	2,243.12	188,178.28
Total, ...		$3,106,845.88

by the Treasurer of Harvard College,
July 31, 1892.

INVESTMENTS AND SUNDRY PAYMENTS (*continued*).

	Amounts brought forward, . .	$22,125.40	$1,538,642.75
$2,000	Chic. Burl. & Quincy R. R. 4's and interest,	1,895.00	
1,000	City of Toledo 8's " "	1,137.92	
3,000	Massachusetts 5's " "	3,215,41	
3,000	Naumkeag Street R'y 5's " "	3,114.17	
2,000	City of Omaha 5's " "	2,085.00	
1,360	Central Iowa R'y coupon debt certificates, .	132.41	
70	shares Boston & Albany R. R. and dividend,	14,465.75	
11	" Worcester & Nashua R. R. " "	1,399.75	
37	" Prov. & Worcester " " "	9,333.25	
33	" Manchester Mills " "	4,816.75	
66	" Clev. Cinn. Chicago & St. Louis R. R. preferred and dividend, ...	6,344.25	
19	" Clev. Cinn. Chic. & St. Louis R.R. com.,	1,282.05	
15	" Worcester Gas Light Co. and dividend,	2,426.25	
56	" Northern Pacific R. R. preferred, . .	3,080.00	
10	" Fitchburg National Bank, ...	1,477.50	
68	" Central National Bank, Worcester, .	9,843.00	
60	" National Webster Bank, Boston, . .	5,792.50	
10	" Blackstone National Bank, Uxbridge,	947.50	94,913.86
	Received as part of the bequest of **Edwin Conant** for the Library.		
	Mortgage on real estate in Worcester, ...	20,000.00	
	Deposits in Worcester Savings Banks, ...	7,699.88	27,699.88
	Received as part of the residuary bequest of **Charles L. Hancock.**		
	Mortgage on real estate in Chicago, ...	47,197.00	
	Real estate in Chelsea, Mass., valued at	1,000.00	48,197.00
	Improvements on **Gray** and **Andrews** Estates, ...		141,862.17
	Purchase of **Hayward** Estate, Washington St., Boston, ...		429,851.50
	" " **Lowell** " " " " "		425,718.13
	Paid Baring Brothers & Co., in account, ...		174.72

	Balance, July 31, 1892.		
	Cash in Suffolk National Bank, ...	$22,323.61	
	Cash in New England Trust Co., ...	21,475.27	
	Cash in National Union Bank, ...	194,594.21	
	Cash in hands of Charles F. Mason, Bursar, .	16,548.23	
	Term Bills due October, 1892, ...	142,429.47	
	" " overdue, ...	2,415.08	399,785.87
	Total, ...		$3,106,845.88

The following Account exhibits the State of the Property, as entered upon the Treasurer's Books, July 31, 1892.

Separate Investments, as stated in detail on pages 3, 4, and 5 of this report, consisting of		
Mortgages and Notes,	$107.197.00	
Railroad Bonds,	249,933.17	
Sundry Bonds,	161,998.75	
Railroad Stocks,	370,243.69	
University Houses and Lands,	429,452.29	
Other Real Estate,	458,587.10	
Sundries,	64,599.44	
Amounting to		$1,842,011.44
And "General Investments" as follows: —		
Mortgages and Notes.		
Mortgages,	10,000.00	
Lawrence Manufacturing Co.'s Note,	70,000.00	
Merrimack Manufacturing Co.'s Note,	80,000.00	
Pacific Mills' Notes,	220,000.00	380,000.00
Railroad Bonds.		
$298,400 Burl. & Mo. R. in Nebr. non ex. 6's,	298,400.00	
104,000 Ft. Scott, So. E. & Mem., 1st M. 7's,	104,000.00	
393,000 Eastern, 1st Mortg. 6's,	393,000.00	
£19,600 Eastern, " " " Sterling,	95,383.40	
450,000 Chicago, Burl. & Quincy Consol. 7's,	450,000.00	
100,000 Chicago, Burl. & Quincy Conv. 5's,	100,000.00	
175,000 U. P. Omaha Bridge 1st M. 5's,	175,000.00	
100,000 Chic. & No. W. Madison Ex. 1st M. 7's,	100,000.00	
100,000 Minneapolis Union 1st M. 5's,	100,000.00	
100,000 Great Northern Coll. Trust 4's,	90,501.00	
Railroad Bond Premiums,	245,874.22	2,152,158.62
Sundry Bonds.		
$100,000 Metropolitan Tel. & Tel. Co. 1st M. 5's,	99,500.00	
100,000 New England " " " " 6's,	102,375.00	
150,000 Chicago Junct. Railways and Union Stock Yards Coll. Trust 5's,	143,905.00	
100,000 General Electric Co. 5's,	97,425.00	443,205.00
Sundry Stocks.		
Amoskeag Manufacturing Co., 12 shares,	8,654.00	
Merrimack " " 17 "	17,000.00	
Pacific Mills, 20 "	17,468.29	
N. Y., New Haven & Hartford R. R., 800 "	177,371.51	215,493.80
Amount carried forward,		$5,032,868.86

Amount brought forward, . . .		$5,032,868.86
Real Estate.		
Amory Estate, Franklin Street, Boston, . . .	$165,615.81	
Webb Estate, Washington Street, Boston, . .	164,604.79	
Gray and Andrews Estates, Washington Street, Boston, ...	801,422.18	
Cole Estate, Washington Street, Boston, . . .	250,000.00	
Lowell Estate, Washington Street, Boston, . .	464,368.91	
Hayward Estate, Washington Street, Boston, .	429,851.50	
Townsend Estate, Hawkins Street, Boston, . .	29,476.09	
Reversion of Buildings in Brattle Street, Boston,	1,000.00	2,306,339.28
Sundries.		
Advances to Dining Hall Association, ...	21,232.16	
" " Lawn Tennis Association, ...	200.00	
" " Bussey Trust, ...	37,513.76	
" " School of Veterinary Medicine. .	19,158.65	
" " Observatory, ...	4,248.27	
" " University Lands, ...	80,000.00	
" " Botanical Department	7,250.85	
Baring Brothers & Co., ...	1,122.55	
Term bills due October, 1892, ...	142,429.47	
" " overdue, ...	2,415.08	265,570.79
Cash in Suffolk National Bank, ...	22,323.61	
" " National Union Bank, ...	194,594.21	
" " hands of Charles F. Mason, Bursar, . . .	16,548.23	233,466.05
Total, ...		$7,838,244.98

The foregoing Property represents the following Funds and Balances, and is answerable for the same.

Principal, Aug. 1, 1891.	UNIVERSITY FUNDS.	Principal, July 31, 1892.
$130,444.37	Stock Account (so called), . .	$124,011.49
141,638.74	Ins. and Guaranty F'd (so called), .	141,638.74
15,750.00	**Israel Munson** Fund, ...	15,750.00
16,871.63	**Leonard Jarvis** "	16,871.63
25,000.00	**John C. Gray** Fund, ...	25,000.00
115,966.56	**George B. Dorr** Fund, ...	115,966.56
5,000.00	**Seth Turner** Fund, ...	5,000.00
113,817.44	**Francis E. Parker** Fund, . . .	113,817.44
30,000.00	**William Perkins** Fund,. . . .	30,000.00
25,370.03	**John L. Russell** Fund, ...	25,370.03
5,000.00	**Stanton Blake** Fund, ...	5,000.00
20,382.57	**Walter Hastings** Fund, ...	20,457.46
4,771.33	**Charlotte F. Blanchard** Fund . .	4,771.33
10,000.00	**Joseph Lee** Fund	10,000.00
63,224.86	President's Fund, ...	63,480.95
155.04	**Thomas Cotton** Fund, ...	155.04
5,250.00	**Samuel D. Bradford** Fund, . . .	5,250.00
254,685.89	Retiring Allowance Fund, ...	267,802.22
22,000.00	**John Cowdin** Fund, ...	22,000.00
	William Hayes Fogg Endowment,	100,721,14
	William Hayes Fogg Construc'n,	98,645.16
	Edwin Conant Bequest, ...	95,516.68
56,655.41	**John Parker** Fellowships, . . .	56,598.14
10,810.95	**Robert Treat Paine** Fellowship, .	11,367.72
10,923.91	**Harris** Fellowship, ...	10,736.50
10,855.38	**John Thornton Kirkland** Fellows'p,	11,139.41
11,066.03	**James Walker** Fellowship, . . .	11,135.93
31,859.50	**Rogers** Fellowships, ...	32,000.29
10,725.41	**Henry Lee** Memorial Fellowship, .	10,827.75
10,252.24	**Ozias Goodwin** Memorial Fellows'p,	10,330.22
10,252.24	**H. B. Rogers** Memorial Fellowship,	10,330.22
31,950.54	**Henry T. Morgan** Fund, . . .	31,950.54
11,265.98	**John Tyndall** Scholarship, . . .	11,096.18
2,329.34	**Sumner** Prize Fund, ...	2,349.28
6,214.82	**George B. Sohier** Prize Fund, . .	6,284.89
332.67	**John O. Sargent** Prize Fund, . .	349.82
6,797.81	Lectures on Political Economy Fund,	7,147.91
150.00	**Robert N. Toppan** Prizes (balance),	150.00
200.00	**Robert Treat Paine** Prizes "	200.00
150.00	Dante Prizes "	150.00
200.00	Semitic Prizes "	200.00
6,186.76	Gifts for Semitic Collect. (balance),	4,457.09
858.69	" " " Library, "	58.67
$1,285,366.14	. . . Amounts carried forward, . . .	$1,586,086.43

Principal, Aug. 1, 1891.			Principal, July 31, 1892.
$1,285,366.14	. . . Amounts brought forward, . .		$1,586,086.43
	COLLEGE FUNDS.		
27,748.64	**Alford** Professorship, ...	27,748.64	
28,337.40	**Boylston** "	28,337.40	
21,619.50	**Eliot** "	21,619.50	
10,000.00	**Eliot** " (**Jon. Phillips's gift**)	10,000.00	
3,500.01	**Erving** "	3,500.01	
35,990.99	**Fisher** "	35,990.99	
20,217.08	**Hersey** "	20,217.08	
21,744.18	**Hersey** " (**Thomas Lee's gift**),	21,744.18	
3,747.33	**Hollis** " (Mathematics),	3,747.33	
34,517.60	**Hollis** " (Divinity), . . .	34,517.60	
43,062.93	**McLean** "	43,062.93	
21,000.00	**Perkins** "	21,000.00	
25,020.19	**Plummer** "	25,020.19	
52,500.00	**Pope** "	52,500.00	
56,441.25	**Rumford** "	56,441.25	
23,189.83	**Smith** "	23,189.83	
184,582.38	**Gurney** Fund, ...	188,588.35	
16,240.38	Fund for Permanent Tutors, . . .	16,240.38	
15,796.97	**Lee** Fund for Reading, ...	15,796.97	
145,000.00	**Class Subscription** Fund, . . .	145,000.00	
2,886.58	**Paul Dudley** Fund for Lectures, .	2,935.26	
31,500.00	**Jonathan Phillips** F'd (unrestricted),	31,500.00	
1,050.00	**John A. Blanchard** " "	1,050.00	
5,384.23	**John W. P. Abbot** " "	5,661.51	
13,353.03	**Daniel H. Peirce** " "	13,421.79	
6,230.00	**Daniel Austin** " "	6,230.00	
2,383.02	Schol. & Benef. money ret. (balance),	2,165.68	
344.61	**Henry Flynt's** Bequest, ...	344.61	
3,432.08	**Abbot** Scholarship, ...	3,458.83	
1,137.59	**Alford** "	1,196.20	
5,328.40	**Bartlett** "	5,352.79	
5,664.84	**Bassett** "	5,686.59	
11,936.04	**Bigelow** "	12,050.74	
109,560.04	**Bowditch** "	110,369.06	
376.84	**Bright** " (balance), . . .	797.66	
3,534.41	**Browne** "	3,616.41	
6,160.88	**Ruluff S. Choate** Scholarship, . .	6,278.17	
7,457.60	**Class of 1802** Scholarship, . . .	7,541.69	
2,946.96	" **1814** "	2,973.73	
5,631.39	" **1815** " (**Kirkland**),	5,788.05	
3,969.69	" **1817** "	4,024.14	
3,344.50	" **1828** "	3,416.76	
3,320.58	" **1835** "	4,000.16	
4,106.00	" **1841** "	4,117.46	
4,724.62	" **1852** " (**Dana**), .	4,767.96	
10,000.00	" **1856** "	10,000.00	
$2,331,336.73	. . . Amounts carried forward, .	$1,052,957.88	$1,586,086.43

Principal, Aug. 1, 1891.			Principal, July 31, 1892.
$2,331,336.73	. . . Amounts brought forward,	$1,052,957.88	$1,586,086.43
3,231.61	Class of 1867 Scholarship, . . .	3,248.06	
10,501.54	Crowninshield "	10,642.39	
600.00	W. H. Cudworth " (balance),	700.00	
5,425.96	George & Martha Derby Scholar'p,	5,455.40	
	Julius Dexter Scholarship, . . .	2,000.00	
5,389.50	W. S. Eliot " . . .	5,417.08	
5,835.46	Farrar " . . .	5,885.96	
10,179.94	Richard Augustine Gambrill Sch.	10,304.21	
6,004.43	Charles Haven Goodwin Sch. . .	6,013.64	
3,371.13	Greene Scholarship, ...	3,544.74	
5,853.71	Levina Hoar Scholarship, ...	5,988.53	
10,077.63	Hodges "	10,463.31	
5,416.04	Hollis "	5,494.96	
	George E. Lowell " (balance),	66.66	
4,438.39	Matthews " "	5,543.48	
5,228.58	Merrick "	5,297.87	
7,655.98	Morey "	7,750.26	
6,698.96	Pennoyer "	6,707.34	
3,412.42	Perkins "	3,588.14	
910.26	Rodger "	957.12	
3,311.26	Henry B. Rogers "	3,381.78	
3,273.28	Edward Russell "	3,652.14	
6,086.46	Mary & Leverett Saltonstall Sch.,	6,399.89	
1,005.33	Dorothy Saltonstall Scholarship, .	1,057.09	
3,206.14	Sever Scholarship, ...	3,221.25	
9,863.38	Sewall "	9,971.32	
46,828.54	Shattuck "	47,140.23	
5,701.71	Slade "	5,828.70	
3,517.12	Story "	3,698.25	
2,528.87	Stoughton "	2,587.21	
4,044.94	Gorham Thomas "	4,119.92	
7,022.04	Toppan "	7,088.67	
24,608.23	Townsend "	24,875.54	
4,093.83	Walcott "	4,104.67	
10,229.72	Whiting "	10.356.56	
10,139.77	Henry B. Humphrey Fund, . .	10,261.98	
9,834.69	Exhibitions, ...	9,832.19	
1,798.63	Palfrey Exhibition, ...	1,891.28	
1,200.00	Samuel Ward Fund, ...	1,200.00	
1,674.98	John Glover "	1,761.24	
11,008.94	Quincy Tufts "	11,010.31	
5,380.28	Day "	5,380.35	
10,398.24	Munroe "	10,396.74	
4,311.68	Price Greenleaf Aid (balance), . .	4,990.14	
4,013.42	Boylston Prizes for Elocution, . .	4,025.09	
13,232.15	Bowdoin Prizes for Dissertations, .	13,351.60	
1,284.93	Hopkins Gift for "Deturs" (balance),	1,302.52	
717.27	Chauncey Wright Fund, ...	754.20	
$2,641,829.10	. . . Amounts carried forward, .	$1,371,662.89	$1,586,086.43

Principal, Aug. 1, 1891.		Principal, July 31, 1892.	
$2,641,829.10	. . . Amounts brought forward,	$1,371,662.89	$1,586,086.43
50,000.00	**Increase S. Wheeler** Fund, . . .	50,000.00	
1,033.57	Fund for Religious Services, . . .	1,033.57	
15,613.69	**John E. Thayer** Fund, ...	15,314.58	
6,372.55	Classical Publ. F'd of **Class of 1856**,	6,400.76	
39,763.10	Botanic Department Fund, ...	40,099.13	
57,882.31	**Lowell** Fund for a Botanic Garden, .	58,882.31	
25,020.29	Herbarium Fund, ...	29,774.46	
75,000.00	Physical Laboratory Endowment, . .	75,000.00	
10,091.60	**Henry Warren Torrey** Fund, . .	10,611.34	
7,879.34	**Joseph Lovering** " . .	8,168.09	
1,320.84	**Jefferson** Physical Lab'y (balance),	1,765.68	
301.30	Gifts for addition to Museum "		
1,753.77	Sundry Gifts (unexpended balances),	914.08	
2,485.88	Gifts for Psychol. Lab'y and Lib'y "	1,394.95	
2,793.08	" " Classical Library "	1,498.06	
565.26	" " Historical " "	351.23	
2,515.62	" " Geological Department "	1,534.22	
	" " Sanskrit " . . .	1,193.10	
	" " College Salaries, ...	4,125.00	1,679,723.45

LIBRARY FUNDS.

100,000.00	**Eben Wright** Fund, ...	100,000.00	
25,976.77	**Constantius** Fund, ...	26,026.04	
500.00	**Jarvis** Fund, ...	500.00	
10,572.25	**Daniel Treadwell** Fund, ...	11,572.25	
10,569.93	Subscription for Library, ...	10,628.65	
2,122.35	**Bowditch** Fund, ...	2,115.35	
242.82	**Bright** " (balance), . . .	234.50	
	Edwin Conant Fund, ...	27,757.59	
5,301.37	**Denny** "	5,376.12	
5,310.15	**Farrar** "	5,320.33	
3,142.28	**Haven** "	3,175.22	
10,085.61	**Hayes** "	10,133.24	
5,278.48	**Hayward** "	5,319 87	
2,392.08	**Hollis** "	2,430.27	
2,115.93	**Homer** "	2,146.09	
5,316.40	**Lane** "	5,352.49	
23,000.21	**Lowell** "	23,203.02	
61,168.58	**Minot** "	60,239.46	
7,149.58	**Lucy Osgood** "	7,195.01	
7,017.22	**Mary Osgood** "	7,100.83	
5,485.29	**Salisbury** "	5,504.27	
20,132.33	**Sever** "	20,131.69	
4,086.64	**Shapleigh** "	4,037.22	
37,589.39	**Sumner** "	37,589.90	
5,002.42	**Tucker** "	5,001.18	
5,305.86	**Ward** "	5,315.53	
15,992.76	**Walker** "	15,906.55	
248.83	**Wales** Gift (balance), ...	364.06	
548.32	**Waterston** " "	576.54	
10,064.37	**J. Huntington Wolcott** Fund, . .	10,090.66	
156.08	Sundry gifts, etc. (unexpended balances),	155.36	420,499.24
$3,334,095.60	. . . Amounts carried forward, . .		$3,686,309.12

Principal, Aug. 1, 1891.		Principal, July 31, 1892.	
$3,334,095.60	. . . Amounts brought forward, . .		$3,686,309.12
	DIVINITY SCHOOL FUNDS.		
28,813.82	Divinity School (balance), . . .	29,182.56	
37,583.74	**Bussey** Professorship, ...	37,583.74	
16,015.81	**Parkman** "	16,015.81	
6,008.43	**Hancock** Professorship, ...	6,008.43	
48,845.73	**Winn** Prof. of Ecclesiastical History,	49,345.73	
20,280.38	**Dexter** Lectureship, ...	20,280.38	
9,184.69	**Henry Lienow** Fund, ...	9,184.69	
5,250.00	**Mary P. Townsend** "	5,250.00	
2,100.00	**Winthrop Ward** "	2,100.00	
1,050.00	**Samuel Hoar** "	1,050.00	
1,050.00	**Abraham W. Fuller** Fund, . . .	1,050.00	
1,050.00	**Caroline Merriam** " . . .	1,050.00	
7,875.00	**Joseph Baker** " . . .	7,875.00	
40,000.00	**Th. Tileston** of New York Endowm't,	40,000.00	
10,000.00	**Henry P. Kidder** Fund, ...	10,000.00	
17,000.00	**Oliver Ames** Fund, ...	17,000.00	
1,000.00	**Abby Crocker Richmond** Fund, .	1,000.00	
71,427.02	New Endowment, ...	71,427.02	
1,000.00	**John L. Russell** Fund, ...	1,000.00	
1,362.79	**John W. Quinby** Fund, . . .	1,432.98	
10,000.00	**William B. Spooner** " . . .	10,000.00	
	Edwin Conant " . . .	5,000.00	
911.34	**Lewis Gould** " . . .	911.34	
2,177.95	**Joshua Clapp** " . . .	2,177.95	
525.00	**Hannah C. Andrews** " . . .	525.00	
1,000.00	**Adams Ayer** " . . .	1,000.00	
890.00	**Daniel Austin** " . . .	890.00	
14,102.20	**Jackson** Foundation, ...	14,188.45	
5,164.00	**Thomas Cary** Scholarships, . .	5,189.95	
2,464.83	**George Chapman** " . .	2,525.12	
4,082.13	**Joshua Clapp** " . .	4,167.35	
4,705.84	**J. Henry Kendall** " . .	4,808.20	
3,237.27	**Nancy Kendall** " . .	3,310.64	
12,989.45	**Abner W. Buttrick** Fund, . . .	13,078.38	
1,050.00	**William Pomroy** " . . .	1,050.00	
2,641.13	Beneficiary money returned, . . .	2,777.14	399,435.86
	LAW SCHOOL FUNDS.		
44,168.50	Law School (balance), ...	62,482.64	
15,750.00	**Dane** Professorship, ...	15,750.00	
23,979.82	**Bussey** "	23,979.82	
8,340.81	**Royall** "	8,340.81	
94,994.97	New "	94,994.97	
47,021.25	Law School Book Fund, ...	47,021.25	
	Scholarship money returned, . . .	160.00	252,729.49
$3,961,189.50	. . . Amounts carried forward, . .		$4,338,474.47

Principal, Aug. 1, 1891.		Principal, July 31, 1892.	
$3,961,189.50	. . . Amounts brought forward, .		$4,338,474.47

LAWRENCE SCIENTIFIC SCHOOL, AND MUSEUM OF COMPARATIVE ZOÖLOGY FUNDS.

7,589.68	Lawrence Scientific School (balance),	9,088.40	
38,807.17	Professorship of Engineering, . .	40,805.73	
61,536.43	**Abbott Lawrence** Fund, ...	61,536.43	
50,375.00	**James Lawrence** Fund, ...	50,375.00	
30,686.85	**John B. Barringer** "	30,686.85	
100,400.00	**Sturgis Hooper** "	100,400.00	
	George A. Gardner "	500.00	
10,008.33	**Rotch** Building Gift (balance), . .		
50,000.00	**Gray** Fund for Zoölogical Museum,	50,000.00	
297,933.10	**Agassiz Memorial** Fund, } . .	297,933.10	
7,594.01	Teachers' and Pupils' " } . .	7,594.01	
117,469.34	Permanent Fund, ...	117,469.34	
7,740.66	**Humboldt** "	7,740.66	774,129.52

MEDICAL SCHOOL FUNDS.

63,429.59	Medical School (balance), ...	85,876.02	
19,192.65	**Jackson** Medical Fund, ...	19,192.65	
17,129.20	**Geo. C. Shattuck** "	17,129.20	
13,507.64	**Warren** Fund for Anatom'l Museum,	13,822.15	
3,439.89	**Boylston** Fund for Medical Prizes,	3,544.65	
3,593.92	**Boylston** " " " Books,	3,779.01	
1,881.62	Medical Library Fund, ...	1,855.29	
2,000.00	**Quincy Tufts** Medical Fund, . .	2,000.00	
25,512.68	**Edward M. Barringer** " . .	25,512.68	
15,765.11	**Mary W. Swett** Fund, ...	15,765.11	
20,000.00	**Samuel W. Swett** "	20,000.00	
1,836.08	**Samuel E. Fitz** "	1,836.08	
6,262.13	**J. Ingersoll Bowditch** Fund, . .	6,393.31	
26,750.00	New Subscription Fund, ...	32,750.00	
65.33	**John Foster** Income for Medical Students (balance), ...	203.69	
5,259.59	**D. W. Cheever** Scholarship, . .	5,330.48	
5,064.37	**Geo. Cheyne Shattuck** Memorial Fellowship, ...	5,325.17	
5,064.37	**John Ware** Memorial Fellowship,	5,156.42	
5,064.37	**Chas. Eliot Ware** " "	5,156.42	
1,814.11	**Ellis** Gift (balance), ...	2,496.77	273,125.10

OBSERVATORY FUNDS.

110,293.88	**Edward B. Phillips** Fund, . . .	110,293.88	
21,000.00	**James Hayward** " . . .	21,000.00	
28,252.38	**David Sears** " . . .	28,979.87	
11,436.92	**Josiah Quincy** " . . .	11,539.18	
2,000.00	**Charlotte Harris** " . . .	2,000.00	
$5,156,945.90	. . . Amounts carried forward, .	$173,812.93	$5,385,729.09

Principal, Aug. 1, 1891.			Principal, July 31, 1892.
$5,156,945.90	. . . Amounts brought forward,	$173,812.93	$5,385,729.09
5,000.00	**Thomas G. Appleton** " . . .	5,000.00	
13,380.00	**Augustus Story** Fund, ...	13,380.00	
50,000.00	Observatory Endowment, ...	50,000.00	
120,110.35	**Robert Treat Paine** Fund, . .	120,110.35	
50,000.00	**Paine** Professorship, ...	50,000.00	
211,224.33	**Uriah A. Boyden** Fund, ...	213,932.71	
43,536.17	**Bruce** Gift (balance), ...	32,032.65	
2,500.00	**J. Ingersoll Bowditch** Fund, . .	2,500.00	
929.31	**Draper Memorial** (balance), . .	1,351.13	
1,830.54	Gifts for Building " . . .	6,162.51	668,282.28

OTHER FUNDS FOR SPECIAL PURPOSES.

413,092.80	**Bussey** Trust (income thereof, ½ to Bussey Institution, ¼ to Law School, and ¼ to Divinity School), . . .	413,092.80	
11,825.39	Bussey Institution (balance), . . .	12,701.35	
609.02	**Bussey** Building Fund, ...	609.02	
155,248.77	**James Arnold** "	155,648.53	
4,433.53	Arnold Arboretum " (balance), Arboretum Construction Gifts, . .	6,229.70	
50,000.00	**Bright** Legacy, ...	50,000.00	
38,155.94	**Robert Troup Paine** Fund, . . .	39,830.94	
42,000.00	**James Savage** Fund, ...	42,000.00	
3,171.50	**John Foster** "	3,171.50	
29,939.33	**Henry Harris** "	29,939.33	
16,420.38	**Gray** Fund for Engravings, . . .	16,420.38	
	John Witt Randall Fund, . . .	30,274.52	
3,985.62	**Gospel Church** Fund, ...	4,190.90	
3,625.00	Fund of the **Class of 1853**, . . .	3,625.00	
1,000.00	" " " " " **1834**, . . .	1,000.00	
718,283.71	**Price Greenleaf** Fund, ...	717,893.71	
24,961.65	**Gore** Annuity Fund, ...	25,947.19	
4,868.27	**Lucy Osgood** Annuity Fund, . .	4,698.97	
50,790.19	**Bemis** Annuity Fund, ...	50,845.23	
3,817.12	Dental School (balance), ...	6,681.97	
15,205.85	Dental School Endowment, . . .	15,205.85	
3,063.00	**Geo. William Sawin** Fund, . .	3,063.00	
10,064.37	**Huntington Frothingham Wolcott** Fund, ...	10,082.67	
	Charles L. Hancock Bequest, . .	72,569.14	
18,590.84	Gains and Losses for General Investments, ...	47,251.34	1,762,973.04

FUNDS IN TRUST FOR PURPOSES NOT CONNECTED WITH THE COLLEGE.

16,426.85	**Daniel Williams** Fund for the conversion of the Indians, ...	16,447.73	
4,812.37	**Sarah Winslow** F'd, for the Minister and Teacher at Tyngsborough, Mass.,	4,812.84	21,260.57
$7,299,848.10			$7,838,244.98

Changes in the Funds during the year ending July 31, 1892.

Total amount of Funds and balances, July 31, 1892, as before stated,		$7,838,244.98	
Total amount of Funds and balances, August 1, 1891, as before stated,		7,299,848.10	
Showing a total increase during the year of			$538,396.88
Which is made up as follows: —			
Gifts forming new Funds or increasing old ones,		440,369.38	
Increase more than decrease of Funds and balances, which appear both at the beginning and end of the year,		109,822.33	
Increase of Funds established during the year,		3,314.85	
Credit balances created,		6,456.36	
		$559,962.92	
Deduct from this amount			
Decrease of Stock Account, by excess of expenditures over income in College, Library, and University accounts,	$6,432.88		
Sundry balances used up,	14,743.16		
Loss from change of special investment,	390.00		
		21,566.04	
			$538,396.88

Net increase of Funds and balances as above,	$119,593.54	
Less decrease as above,	21,566.04	
Leaving amount of the net increase of the Funds and balances, excluding gifts for capital account, as is also shown in the following table,		$98,027.50

Statement showing Changes in the Different Funds

Increase of Funds and balances which appear both at the beginning and the end of the year, being the excess of income (including gifts for immediate use) over payments towards the special objects of those Funds.

UNIVERSITY.

President's Fund,	$256.09	
Retiring Allowance Fund,	13,116.33	
Robert Treat Paine Fellowship,	556.77	
Sumner Prize Fund,	19.94	
James Walker Fellowship,	69.90	
Rogers "	140.79	
John T. Kirkland "	284.03	
Henry Lee Memorial Fellowship,	102 34	
Ozias Goodwin " "	77.98	
H. B. Rogers " "	77.98	
John O. Sargent Prizes,	17.15	
George B. Sohier "	70.07	
Lectures on Political Economy Fund,	350.10	
Walter Hastings Fund,	74.89	$15,214.36

COLLEGE.

Daniel H. Peirce Fund,	68.76	
Paul Dudley Fund,	48.68	
John W. P. Abbot Fund,	277.28	
Gurney Fund,	4,005.97	
Abbot Scholarship,	26.75	
Alford "	58.61	
Bartlett "	24.39	
Bassett "	21.75	
Bigelow "	114.70	
Bowditch "	809.02	
Bright " (balance),	420.82	
Browne "	82.00	
R. S. Choate Scholarship,	117.29	
Class of 1802 "	84.09	
" **1814** "	26.77	
" **1815** " (**Kirkland**),	156.66	
" **1817** "	54.45	
" **1828** "	72.26	
" **1835** "	179.58	
" **1841** "	11.46	
" **1852** " (**Dana**),	43.34	
" **1867** "	16.45	
Crowninshield "	140.85	
W. H. Cudworth "	100.00	
George & Martha Derby Scholarship,	29.44	
W. S. Eliot Scholarship,	27.58	
Amounts carried forward,	$7,018.95	$15,214.36

and balances during the year ending July 31, 1892.

Decrease of Funds and balances which appear both at the beginning and the end of the year, being the excess of payments over income received (including gifts for immediate use) for the special objects of those Funds.

UNIVERSITY.

John Parker Fellowship,	$57.27	
Harris Fellowship,	187.41	
John Tyndall Scholarship,	169.80	$414.48

COLLEGE.

Exhibitions,	2.50	
Munroe Fund,	1.50	
John E. Thayer Fund,	299.11	
Scholar. and Benefic. Money Returned (balance),	217.34	
Gifts for Psychological Lab. and Library, "	1,090.98	
" " Classical Library "	1,295.02	
" " Historical " "	214.03	
" " Geological Department "	981.40	4,101.88

LIBRARY.

Bowditch Fund,	7.00	
Bright " (balance),	8.32	
Minot "	929.12	
Sever "	.64	
Shapleigh "	49.42	
Tucker "	1.29	
Walker "	86.21	
Sundry gifts, etc. (balance),	.72	1,082.72

MEDICAL SCHOOL.

Medical Library Fund,	26.33

OBSERVATORY.

Bruce Gift (balance),	11,503.52

FUNDS FOR SPECIAL PURPOSES.

Lucy Osgood Annuity Fund,	169.30	
Gifts for Semitic Collection (balance),	1,729.67	
" " " Library "	800.02	2,698.99
Amount carried forward,		$19,827.87

Statement showing Changes in the Different Funds

INCREASE.

Amounts brought forward, ...	$7,018.95	$15,214.36
Farrar Scholarship, ...	50.50	
R. A. Gambrill "	124.27	
C. H. Goodwin "	9.21	
Greene "	173.61	
Hodges "	385.68	
Levina Hoar "	134.82	
Hollis "	78.92	
Matthews " (balance), ...	1,105.09	
Merrick "	69.29	
Morey "	94.28	
Pennoyer "	8.38	
Perkins "	175.72	
Rodger "	46.86	
Henry B. Rogers "	70.52	
Edward Russell "	178.86	
Mary & Leverett Saltonstall Scholarship, .	313.43	
Dorothy Saltonstall Scholarship, ...	51.76	
Sever Scholarship, ...	15.11	
Sewall "	107.94	
Shattuck "	311.69	
Slade "	126.99	
Story "	181.13	
Stoughton "	63.34	
Toppan "	61.63	
Townsend "	267.31	
Gorham Thomas "	74.98	
Walcott "	10.84	
Whiting "	126.84	
John Glover Fund, ...	86.26	
Bowdoin Prizes, ...	119.45	
Chauncey Wright Fund, ...	36.93	
Henry B. Humphrey Fund, ...	122.21	
Price Greenleaf Aid (balance), ...	678.46	
Boylston Prizes for Elocution, ...	11.67	
Classical Publication Fund, ...	28.21	
Herbarium Fund, ...	2,754.17	
Jefferson Physical Laboratory (balance), . . .	444.84	
Palfrey Exhibition, ...	92.65	
Quincy Tufts Fund, ...	1.37	
Day Fund, ...	.07	
Hopkins Gift for "Deturs" (balance), ...	67.59	
Sundry gifts (unexpended balances), ...	4,478.41	
Botanic Department Fund, ...	336.03	
Henry Warren Torrey Fund, ...	519.74	
Joseph Lovering Fund, ...	288.75	21,504.76
Amount carried forward, ...		$36,719.12

and balances during the year ending July 31, 1892. (*Continued.*)

DECREASE.

Amount brought forward, ...		$19,827.87
Sundry balances used up.		
Gifts for Addition to Museum, ...	$301.30	
Rotch Building Gift, ...	10,008.33	
Arnold Arboretum, ...	4,433.53	14,743.16
Decrease of Stock Account by excess of expenditures over income, in College, Library, and University Accounts, ...		6,432.88
Price Greenleaf Fund, loss from change of special investment, ...		390.00

Amount carried forward, ...	$41,393.91

Statement showing Changes in the Different Funds

INCREASE.

Amount brought forward, ...		$36,719.12
LIBRARY.		
Constantius Fund, ...	$49.27	
Denny "	74.75	
Farrar "	10.18	
Haven "	32.94	
Hayes "	47.63	
Hayward "	41.39	
Hollis "	38.19	
Homer "	30.16	
Lane "	36.09	
Lowell "	202.81	
Lucy Osgood "	45.43	
Mary Osgood "	83.61	
Salisbury "	18.98	
Subscription "	58.72	
Sumner "	.51	
Wales Gift (balance), ...	115.23	
Ward Fund, ...	9.67	
Waterston Gift (balance), ...	28.22	
J. Huntington Wolcott Fund, ...	26.29	950.07
DIVINITY SCHOOL.		
Balance, ...	368.74	
Winn Professorship, ...	500.00	
John W. Quinby Fund, ...	70.19	
Jackson Foundation, ...	86.25	
Joshua Clapp Scholarship, ...	85.22	
J. H. Kendall "	102.36	
A. W. Buttrick Fund, ...	88.98	
Beneficiary Money Returned (balance), ...	136.01	
George Chapman Scholarship, ...	60.29	
Thomas Cary "	25.95	
Nancy Kendall "	78.37	1,597.31
LAW SCHOOL.		
Balance, ...		18,314.14
LAWRENCE SCIENTIFIC SCHOOL AND MUSEUM OF COMPARATIVE ZOÖLOGY.		
Balance, L. S. S., ...	1,498.72	
Professorship of Engineering, ...	1,998.56	3,497.28
Amount carried forward, ...		$61,077.92

and balances during the year ending July 31, 1892. (*Continued.*)

DECREASE.

Amount brought forward, ...	$41,393.91
Amount carried forward, ...	$41,393.91

Statement showing Changes in the Different Funds

INCREASE.

Amount brought forward, ...		$61,077.92
MEDICAL SCHOOL.		
Balance, ...	$22,446.43	
Warren Fund for Anatomical Museum, ...	314.51	
Boylston Fund for Medical Books, ...	185.09	
D. W. Cheever Scholarship, ...	70.89	
Boylston Fund for Medical Prizes, ...	104.76	
J. Ingersoll Bowditch Fund, ...	131.18	
John Foster inc. for Med. Students (balance),	138.36	
Geo. Cheyne Shattuck Memorial Fellowship,	260.80	
John Ware " "	92.05	
Charles Eliot Ware " "	92.05	
Ellis Gift (balance)	682.66	24,518.78
OBSERVATORY.		
David Sears Fund, ...	$727.49	
Draper Memorial (balance), ...	421.82	
Josiah Quincy Fund, ...	102.26	
Uriah A. Boyden Fund, ...	2,708.38	
Gifts for Building (balance), ...	4,331.97	8,291.92
FUNDS FOR SPECIAL PURPOSES.		
Bussey Institution (balance), ...	875.96	
James Arnold Fund, ...	399.76	
Robert Troup Paine Fund, ...	1,675.00	
Gospel Church Fund, ...	205.28	
Gore Annuity "	985.54	
Daniel Williams "	20.88	
Sarah Winslow "	.47	
Bemis Annuity Fund, ...	55.04	
Dental School (balance), ...	2,864.85	
Huntington Frothingham Wolcott Fund, .	18.30	
Gains and Losses for General Investments, . .	28,660.50	35,761.58
		$129,650.20
Increase of Funds established during the year.		
Edwin Conant Library Fund, ...	57.59	
John Witt Randall "	274.52	
Wm. Hayes Fogg Art Mus. Endowment, . .	721.14	
" " " " " Construction acc't,	645.16	
Edwin Conant Bequest, ...	151.57	
Charles L. Hancock Fund, ...	1,464.87	3,314.85
Credit balances created.		
George Emerson Lowell Scholars'p (balance),	66.66	
Law School Scholarship money returned, "	160.00	
Arboretum Construction Gifts, "	6,229.70	6,456.36
Total, ...		$139,421.41

and balances during the year ending July 31, 1892. (Continued.)

DECREASE.

Amount brought forward, ...	$41,393.91
Balance, which is the net increase of the Funds and balances for the year ending July 31, 1892, excluding gifts for capital account, ...	98.027.50
Total, ...	$189,421.41

The following tables are not found, in their present form, in the Treasurer's books. They are intended to exhibit with some detail the resources and the expenditures of each department of the University. The income of every Fund held by the University is given in these tables, and also the sum paid out for the specific object of each and every Fund, in case that sum be either less or more than the actual income of the Fund. If the object to which the income of a Fund is to be applied be a general one, — like salaries, for example, — no separate mention is made in these tables of that appropriation. That particular payment is merged with others of the same kind under the general heading. A balanced summary of these tables will be found on page 65.

Table No. I.

THE UNIVERSITY.

RECEIPTS.

Income of the unappropriated fund heretofore called the Stock Account, from special investment, .	$1,510.75	
Interest on balance, ...	5,207.11	$6,717.86
Income of the following funds: —		
Insurance and Guaranty, from special investm't,		7,294.41
Joseph Lee, from special investment, ...		515.00
John C. Gray, from special investment, . . .		1,287.50
George B. Dorr, from special investment, . .		5,972.30
Francis E. Parker, from special investment, .		5,861.58
Israel Munson, ...		811.12
Leonard Jarvis, ...		868.91
Samuel D. Bradford, ...		270.37
Seth Turner, ...		257.50
Henry T. Morgan, ...		4,220.48
Henry Harris, ½ of income, ...		770.93
William Perkins, ...		1,545.00
Stanton Blake, ...		257.50
John Cowdin, from special investment, . . .		1,697.64
Walter Hastings, from sp. investm't,	$2,343.00	
Interest on accumulated income,	19.72	2,362.72
John L. Russell, ...		1,203.55
Charlotte F. Blanchard, ...		245.71
Thomas Cotton, ...		7.57
President's, ...		3,256.09
Parker Fellowships, ...		2,917.73
John Thornton Kirkland Fellowship, . . .		559.03
Harris Fellowship, ...		562.59
James Walker Fellowship, ...		569.90
Rogers Fellowships, ...		1,640.79
Robert Treat Paine Fellowship, ...		556.77
John Tyndall Scholarship, ...		580.20
Henry Lee Memorial Fellowship, ...		552.34
Ozias Goodwin " "		527.98
Henry Bromfield Rogers Memorial Fellowship,		527.98
Amount carried forward, ...		$54,419.05

TABLE I., CONTINUED.

RECEIPTS.

Amount brought forward,	$54,419.05	
Sumner Prize,	119.94	
George B. Sohier Prize,	320.07	
John O. Sargent Prize,	17.15	
Retiring Allowance (accumulating),	13,116.33	
Lectures on Political Economy,	350.10	
William Hayes Fogg Endowment,	1,072.90	
" " " Construction,	645.16	
Gifts for Semitic Collections and Lib'y (balance),	155.75	
Edwin Conant Bequest,	154.57	$70,371.02
From **John O. Sargent**, gift for prize,	100.00	
Miss G. W. Sargent, gift for prize,	100.00	
Andrew P. Peabody, gift for prizes,	200.00	
Jacob H. Schiff, gifts for prizes and Scholars'p,	600.00	1,000.00
Balance remaining after dividing the net income among the Funds,	33.32	
For care of the **Sarah Winslow** Fund,	6.19	
Sale of Catalogues, Calendars, and Directories,	1,037.93	
Sale of grass and wood,	95.00	
Examination fees for degrees of Ph.D. and S.D.,	60.00	
Rent of houses in No. Harvard St., Brighton,	286.00	
For pasturage on Brighton marsh,	75.00	1,593.44
		$72,964.46

PAYMENTS.

Overseers' Expenses.		
Advertising, postage, &c.,	$118.20	
Printing President's Annual Report,	1,723.85	
Printing Treasurer's " "	456.15	
Printing other reports, and auditing Treasurer's accounts,	311.50	$2,609.70
Office Expenses.		
President's,	658.56	
Treasurer's,	1,044.70	
Bursar's,	2,159.67	
Supt. of Buildings' and Janitor's,	132.84	
Corporation Rooms (fuel, rent, furniture, &c.),	2,681.37	6,677.14
Salaries.		
President,	8,007.57	
Treasurer and Deputy Treasurer,	6,000.00	
Secretary of the University,	2,500.00	
Secretary of the Board of Overseers,	200.00	
Bursar,	3,000.00	
Bursar's Assistant,	1,200.00	
Clerks Treasurer's office,	3,800.00	
Superintendent of Buildings,	2,400.00	27,107.57
Amount carried forward,		$36,394.41

TABLE I., CONTINUED.

PAYMENTS

Amount brought forward, ...		$86,394.41
Memorial Hall and Sanders Theatre.		
Insurance, ...	$10.00	
Repairs, fuel, gas, &c., ...	434.06	444.06
General Expenses.		
Advertising, ...	151.94	
Labor, &c. on grounds, ...	7,539.49	
Subscription to Mercantile Agency, ...	300.00	
Watering streets, and water, ...	284.38	
Watchmen, ...	1,063.61	
Freight, diplomas, and sundries, ...	489.67	
Printing, ...	726.77	
Music, Commencement, ...	185.00	
Annual Catalogue and Calendar, ...	3,477.45	
Repairs and improvements, ...	2,793.79	
Taxes on certain unimproved lands, ...	166.32	
Postage on annual reports, catalogues, &c., . .	1,666.00	
John Harvard genealogical researches, . . .	100.00	
Portrait of Walter Hastings, ...	338.00	
Services of Electrical Engineers, &c., ...	1,483.81	
Expenses of delegates, ...	160.50	20,926.73
		$57,765.20
Sundry payments from Special Funds.		
Repairs and expenses on Sacramento St. houses, from Walter Hastings Fund, ...	2,287.83	
Semitic Collection, ...	1,885.42	
" Books and Binding, ...	800.02	
Sundry Expenses, Fogg Collection, ...	351.76	
Certified copy of Edwin Conant's Will, . . .	3.00	5,328.03
Fellowships and Scholarships.		
John Parker, ...	2,975.00	
Harris, ...	750.00	
John Thornton Kirkland, ...	275.00	
James Walker, ...	500.00	
Rogers, ...	1,500.00	
Morgan, ...	2,833.34	
Ozias Goodwin Memorial, ...	450.00	
Henry Bromfield Rogers Memorial, ...	450.00	
Henry Lee Memorial, ...	450.00	
John Tyndall Scholarship, ...	750.00	
University Scholarships, ...	3,000.00	
Jacob H. Schiff Scholarship, ...	350.00	14,283.34
Prizes.		
Andrew P. Peabody, ...	200.00	
George B. Sohier, ...	250.00	
John O. Sargent, ...	200.00	
Charles Sumner, ...	100.00	
Jacob H. Schiff, ...	250.00	1,000.00
		$78,376.57

Table No. II.

THE COLLEGE.

RECEIPTS.

From Term Bills.		
Instruction,	$230,899.25	
Rents available for general expenses,	52,361.10	$283,260.35
Income of Scholarship Funds.		
Abbot,	176.75	
Alford (accumulating),	58.61	
Bartlett,	274.39	
Bassett,	291.75	
Bigelow,	614.70	
Bowditch,	5,642.34	
Bright, ½ income of **Bright** Legacy,	1,287.50	
Browne,	182.00	
Ruluff Sterling Choate,	317.29	
Class of 1802,	384.09	
" **1814,**	151.77	
" **1815 (Kirkland),**	290.00	
" **1817,**	204.45	
" **1828,**	172.26	
" **1835** (accumulating),	179.58	
" **1841,**	211.46	
" **1852 (Dana),**	243.34	
" **1856,** from special investment,	600.00	
" **1867,**	166.45	
Crowninshield,	540.85	
George and **Martha Derby,**	279.44	
William Samuel Eliot,	277.58	
Farrar,	300.50	
Richard Augustine Gambrill,	524.27	
Charles Haven Goodwin,	309 21	
Greene (accumulating),	173.61	
Price Greenleaf,	3,000 00	
Levina Hoar, for the town of Lincoln,	301.48	
Hodges,	519.02	
Hollis,	278.92	
Henry B. Humphrey,	522.21	
William Merrick,	269.29	
Morey,	394.28	
Pennoyer. Interest, $116.13		
Annuity, 142.25	258.38	
Perkins (accumulating),	175.72	
Rodger (accumulating),	46.86	
Henry Bromfield Rogers,	170.52	
Edward Russell (accumulating),	178.86	
Mary & Leverett Saltonstall (accumulating),	313.43	
Dorothy Saltonstall (accumulating),	51.76	
Savage,	300.00	
Amounts carried forward,	$20,684.92	$283,260.35

TABLE II., CONTINUED.

RECEIPTS.

Amounts brought forward, ...	$20,634.92	$283,260.35
Sever, ...	165.11	
Sewall, ...	507.94	
Shattuck, ...	2,411.69	
Slade, ...	293.65	
Story (accumulating), ...	181.13	
Stoughton (accumulating), ...	63.34	
Gorham Thomas, ...	208.32	
Toppan, ...	361.63	
Townsend, ...	1,267.31	
Walcott, ...	210.84	
Whiting, ...	526.84	26,832.72
Received from the Trustee of the **Thayer** Scholarships,	$3,000.00	
" for the **Warren H. Cudworth** "	600.00	
" " " **George Emerson Lowell** "	400.00	
" " " **Matthews** Scholarships (⅓ of net rents of Hall), ...	5,305.09	9,305.09
Other Beneficiary Funds, income of.		
"Exhibitions,"	506.50	
Palfrey "Exhibition,"	92.65	
Samuel Ward. From special investment, . .	50.00	
John Glover (accumulating), ...	86.26	
Quincy Tufts, ...	566.96	
Moses Day, ...	277.07	
Munroe, ...	535.50	
Price Greenleaf Aid, ...	16,655.09	
Scholarship and Beneficiary Money Returned, returned by beneficiary, ...	100.00	18,870.03
Prize Funds, income of.		
Ward Nicholas Boylston Prizes for Elocution,	$206.67	
James Bowdoin Prizes for Dissertations, . .	681.45	
Edward Hopkins Gift for "Deturs."		
From Trustees, ... $231.77		
Interest on unexpended balance, . 63.60	295.37	
Chauncey Wright (accumulating), ...	36.93	1,220.42
Funds for Instruction, income of,		
Alford Professorship, ...	$1,429.07	
Boylston "	1,459.36	
Eliot "	1,113.43	
J. Phillips' addition to **Eliot** Professorship,	500.00	
Erving Professorship, ...	180.25	
Fisher "	1,853.54	
Hersey " ⅓ inc. of the Fund,	624.71	
Hollis " (Mathematics), . .	192.97	
Hollis " (Divinity), . . .	1,777.68	
McLean "	2,217.74	
Amounts carried forward, ...	$11,348.75	$339,488.61

TABLE II., CONTINUED.

RECEIPTS.

Amounts brought forward, ...	$11,348.75	$339,488.61
Perkins Professorship, ...	1,081.50	
Plummer "	1,288.53	
Pope "	2,703.75	
Rumford "	2,906.71	
Smith "	1,191.71	
Fund for Permanent Tutors, ...	836.36	
Thos. Lee Fund for the Hersey Professorship,	1,119.82	
Thos. Lee " " Reading, ...	813.55	
Class Subscription, ...	7,467.50	
Henry Flynt, ...	16.89	
Paul Dudley Fund, ...	148.68	
Gifts for salaries, ...	5,550.00	36,473.75
Income of **Jonathan Phillips** unrestricted Fund,	$1,622.25	
" " **John A. Blanchard** " "	54.07	
" " **Daniel H. Pierce** " "	687.68	
" " **J. W. P. Abbot** Fund (accumulating), .	277.28	
" " **John E. Thayer** "	804.12	
" " Fund for Religious Services, ...	53.25	
" " **Gurney** Fund, ...	9,505.97	
" " Classical Publication Fund of the **Class of 1856**, ...	328.21	
" " **Increase Sumner Wheeler** Fund, . . .	2,575.00	
" " **Henry Warren Torrey** Fund, ...	519.74	
" " The **Joseph Lovering** Fund for Physical Research, ...	405.77	16,833.34
Hemenway Gymnasium.		
For use of lockers, ...		2,696.00
Carey Athletic Building.		
For use of lockers, ...		143.00
Jefferson Physical Laboratory.		
Income from Endowment, ...	3,862.50	
Interest on unexpended balance, ...	68.03	3,930.53
Professor **Cooke's** addition to the University Museum.		
Interest on unexpended balance, ...		5.14
Sanskrit Department.		
Additional gift from **Henry C. Warren**, . . .		750.00
Geological Department.		
Interest on unexpended balance, ...		64.09
Psychological Laboratory and Library.		
Interest on unexpended balance, ...		55.06
Classical Library.		
Interest on unexpended balance, ...	56.71	
Sale of duplicate books, ...	43.54	100.25
Amount carried forward, ...		$400,589.77

TABLE II., CONTINUED.

RECEIPTS.

Amount brought forward, ...		$400,539.77
Botanic Garden and Botanic Museum.		
Income of Fund, ...	$2,047.79	
" " **Lowell Fund**, ...	2,995.96	
" " **John L. Russell Fund**, ...	25.75	
Rent of house, ...	700.00	
Gifts for present use, ...	4,000.00	9,769.50
Herbarium.		
Income of Fund, ...	1,310.01	
Gifts for present use, ...	3,550.00	
Received from **Asa Gray's** copyrights, . . .	2,817.33	
Income of **John L. Russell** Fund, ...	77.25	
Sale of duplicate books, ...	55.50	
" " plants, &c., ...	258.76	8,068.85
Sundries.		
For use of rooms by College Society, ...	510.00	
Sale of tickets to Commencement Dinner, . . .	585.00	
" " Chemistry and Physics pamphlets, . . .	212.96	
" " old examination papers, ...	3.21	
" " Historical Monographs, ...	134.42	
Fees for admission examinations, &c., ...	1,228.00	
Fees for Summer Courses, ...	10,662.50	
Laboratory fees received.		
Chemistry, ... $7,128.81		
Physics, ... 2,082.50		
Natural History, ... 2,076.25		
Philosophy, ... 355.00	11,642.56	
Gifts for books for class-room libraries, &c., . .	14.00	
Gifts for illustrated lectures in Latin and Greek department, ...	490.00	
Gift to pay for expenses on the **Sever** portraits,	22.98	25,505.63
Total receipts, ...		$443,883.75

PAYMENTS.

Paid the incumbents of the following Scholarships.	
Abbot, ...	$150.00
Bartlett, ...	250.00
Bassett, ...	270.00
Bigelow, ...	500.00
Bowditch, ...	4,833.32
Bright, ...	866.68
Browne, ...	100.00
Ruluff Sterling Choate, ...	200.00
Warren H. Cudworth, ...	500.00
Class of 1802, ...	300.00
" **1814**, ...	125.00
" **1815 (Kirkland)**, ...	133.34
Amount carried forward, ...	$8,228.34

TABLE II., CONTINUED.

PAYMENTS.

Amount brought forward,	$8,228.34	
Class of 1817,	150.00	
" 1828,	100.00	
" 1841,	200.00	
" 1852,	200.00	
" 1856,	600.00	
" 1867,	150.00	
Crowninshield,	400.00	
Hodges,	133.34	
George and Martha Derby,	250.00	
William Samuel Eliot,	250.00	
Farrar,	250.00	
Richard Augustine Gambrill,	400.00	
Charles Haven Goodwin,	300.00	
Price Greenleaf,	3,000 00	
Levina Hoar, for the town of Lincoln,	166.66	
Hollis,	200.00	
Henry B. Humphrey,	400.00	
George Emerson Lowell,	333.34	
Matthews,	4,200.00	
William Merrick,	200.00	
Morey,	300.00	
Pennoyer,	250.00	
Henry Bromfield Rogers,	100.00	
Savage,	300.00	
Sever,	150.00	
Sewall,	400.00	
Shattuck,	2,100.00	
Slade,	166.66	
Thayer,	3,000.00	
Gorham Thomas,	133.34	
Toppan,	300.00	
Townsend,	1,000.00	
Walcott,	200.00	
Whiting,	400.00	$28,911.68
Paid other Beneficiaries from the following Funds.		
Exhibitions,	509.00	
Samuel Ward,	50.00	
Quincy Tufts,	565.59	
Day,	277.00	
Munroe,	537.00	
Price Greenleaf Aid,	15,976.63	
Scholarship and Beneficiary Money Returned,	317.34	18,232.56
Prizes.		
Boylston Prizes for Elocution,	195.00	
Bowdoin Prizes for Dissertations,	562.00	
"Deturs" from Hopkins Donation,	227.78	984.78
Amount carried forward,		$48,129.02

TABLE II., CONTINUED.

PAYMENTS.

Amount brought forward,		$48,129.02
Hemenway Gymnasium.		
Salaries and wages,	$6,272.50	
Janitors and cleaning,	1,436.41	
Fuel, water, gas, and sundries,	1,519.79	
Repairs and improvements,	1,441.84	
Apparatus,	463.70	
Photographing,	200.00	
Insurance,	50.00	
	11,384.24	
Less amount received from other Departments,	2,099.42	9,284.82
Carey Athletic Building.		
Repairs and improvements,	61.74	
Janitors and cleaning,	477.00	
Fuel, water, gas, and sundries,	308.41	847.15
Jefferson Physical Laboratory.		
Spent on building and fixtures,	599.14	
Laboratory expenses, $3,486.55		
Less part paid by the College, 600.00	2,886.55	3,485.69
John E. Thayer Fund.		
Expenses of Quarterly Journal of Economics, and other printing,		1,103.28
The **Joseph Lovering** Fund for Physical Research.		
Paid sundry accounts,		117.02
Charles Fairchild's gift for Geological Department.		
Sundry expenses and salary,		1,045.49
Classical Publication Fund of the **Class of 1856.**		
Printing Studies in Classical Philology,		300.00
Sanskrit Department.		
Printing Harvard Oriental Series, &c.,		292.01
Psychological Laboratory and Library.		
Paid for apparatus, books, &c.,		1,145.99
Professor **Cooke's** addition to the University Museum.		
Paid on account of furnishing,		436.66
Salaries for instruction,		216,637.97
Payments for College Edifices not valued on Treasurer's books.		
Insurance,	322.50	
Repairs, improvements, &c.,	19,449.34	19,771.84
Botanic Garden and Botanic Museum.		
For salaries, labor, repairs, materials, &c.,	9,433.47	
Interest on advances,	345.28	9,778.75
Herbarium.		
For salaries, labor, repairs, materials, &c.,		5,314.68
Amount carried forward,		$317,690.32

TABLE II., CONTINUED.

PAYMENTS.

Amount brought forward, ...			$317,690.32
Summer Schools.			
Salaries, ...		$6,536.71	
Clerical services, ...		400.00	
Supplies, materials, &c., ...		649.68	
Printing, ...		406.75	
Advertising, ...		231.05	8,224.19
Paid from gifts for books for Political Economy Dept.,		25.23	
" " " " Music "		6.72	
" " " " French "		13.40	
" " " " Mathematics "		74.40	
" " " " German "		23.89	
" " " " Social Questions,		39.94	
" " " " Classical Library,		1,395.27	
" " " " Historical "		214.03	1,792.88
" " illustrated lectures in Latin and Greek Departments, ...			300.00
General Expenses.			
Appropriations for collections and laboratories.			
Physical Apparatus (Prof. Trowbridge),	$1,000.00		
Mineralogy and Chemis'y (Prof. Cooke),	1,000.00		
Botany (Prof. Goodale), ...	250.00		
Botany (Prof. Farlow), ...	200.00		
Geology (Prof. Shaler), ...	250.00		
Zoölogy (Prof. Mark), ...	389.38		
Psychology (Prof. James), ...	200.00		
Fine Arts (Prof. Norton), ...	300.00		
Geography (Prof. Davis), ...	250.00		
Drawing (Asst. Professor Moore), . .	150.00		
Petrography (Instructor Wolff), . . .	150.00		
Laboratory fees appropriated, . . .	11,642.56		
Fuel and service in Nat. Hist. Labor's,	1,500.00	17,281.94	
Jefferson Physical Laboratory.			
Expenses paid by the College, ...		600.00	
Appleton Chapel.			
Preaching and morning services, . .	3,200.00		
Organist and Choir-master, ...	1,500.00		
Choir, ...	1,400.00		
Books, hymnals, and music, ...	419.53		
Fuel, gas, cleaning, &c., ...	1,719.03		
Services and wages, ...	202.50	8,441.06	
Admission examinations, ...	1,694.96		
Advertising, ...	451.92		
Cleaning and care of College buildings not valued on Treasurer's books, .	12,220.76		
Commencement Dinner, ...	689.24		
Amounts carried forward,	$15,056.88	$26,323.00	$328,007.39

TABLE II., CONTINUED.

PAYMENTS.

Amounts brought forward,	$15,056.88	$26,823.00	$328,007.39
General Expenses.			
Deans and Chairmen Committees, salaries, clerical and office expenses,	10,399.62		
Fuel, &c.,	6,029.51		
Furniture,	2,933.22		
Freight, diplomas, and sundries,	1,611.01		
Gas,	2,640.80		
Music, Class-Day,	125.00		
Pews hired in Cambridge churches,	1,057.00		
Printing office, expenses, $14,946.20			
Less amount rec'd from other Departments, 11,952.09	2,994.11		
Printing,	605.62		
Services of examiners and proctors,	4,302.16		
" " assistants to instructors,	2,619.41		
" " undergraduates,	439.98		
Assistant in Geological Library,	250.00		
Supplies, tools, and materials,	607.25		
Watchmen,	744.05		
Water rates,	591.73		
Laboratory assistant,	308.60		
Instruments and apparatus,	362.83		
Collation,	238.26		
Books,	15.22	53,932.26	80,255.26
Total payments,			$408,262.65

TABLE No. III.

THE LIBRARY.

RECEIPTS.

Income of the following Funds for the purchase of books.	
Subscription for Library,	$544.36
Nathaniel I. Bowditch,	109.28
Bright, ½ income of the Bright Legacy,	1,287.50
Constantius, ½ of income,	668.91
Edwin Conant, ¼ of income,	66.29
Denny,	273.00
Eliza Farrar,	273.46
Horace A. Haven,	161.81
Francis B. Hayes,	519.43
George Hayward,	271.82
Amount carried forward,	$4,175.86

TABLE III., CONTINUED.

RECEIPTS.

Amount brought forward,		$4,175.86
Thomas Hollis,		123.19
Sidney Homer,		108.97
Frederick A. Lane,		273.77
Lowell, ⅓ of income,		1,184.50
Charles Minot. From special investm't,	$4,200.00	
Interest on unexpended balance,	60.20	4,260.20
Lucy Osgood,		368.22
Mary Osgood,		361.38
Stephen Salisbury,		282.48
Sever,		1,036.80
Samuel Shapleigh,		210.48
Charles Sumner,		1,935.83
Ichabod Tucker. From special investment,		200.00
George W. Wales. Gift,	200.00	
Interest on unexpended balance,	12.82	212.82
James Walker,		823.64
Thomas W. Ward,		273.26
Executors of **Robert Waterston.**		
Interest on unexpended balance,		28.22
J. Huntington Wolcott,		518.30
Gift from Dante Society,		80.00
Sale of duplicates, &c.,		33.75 16,491.67
James Savage Fund for general expenses (⅓ of income),		1,397.25
Constantius " " " ⅓ " "		668.91
Edwin Conant " " " ⅓ " "		198.87
Daniel Treadwell " " "		561.66
Daniel Austin " " "		320.84
Eben Wright " " "		5,150.00
Jarvis " " "		25.75
Price Greenleaf " " "		16,655.08 24,978.36
Fees for use of Library,		135.00
Sale of Bulletins, &c.,		128.50 263.50
		$41,733.53

PAYMENTS.

For Books from		
Subscription Fund,		$485.64
Bowditch "		116.28
Bright "		1,295.82
Conant "		8.70
Constantius "		619.64
Denny "		198.25
Farrar "		263.28
Haven "		128.87
Hayes "		471.80
Hayward "		230.43
Amount carried forward,		$3,818.71

TABLE III., CONTINUED.

PAYMENTS.

Amount brought forward,		$3,818.71	
Hollis Fund,		85.00	
Homer "		78.81	
Lane "		237.68	
Lowell "		981.69	
Minot "		5,189.32	
Lucy Osgood "		322.79	
Mary Osgood "		277.77	
Salisbury "		277.50	
Sever "		1,037.44	
Shapleigh "		259.90	
Sumner "		1,935.32	
Tucker "		201.29	
Walker "		909.85	
Ward "		266.34	
J. Huntington Wolcott Fund,		492.01	
Wales Gift,		97.59	
Dante Society Gift,		79.22	
Duplicate money,		12.73	
Subscription of 1880,		5.77	$16,566.73
Salaries and wages,		22,702.69	
Binding,		1,600.10	
Stationery and postage,		629.19	
Fuel,		1,110.27	
Repairs and improvements,		479.77	
Freight, water, supplies, and sundries,		617.81	
Janitors and cleaning,		931.32	
Furniture,		306.07	
Bulletins, and other printing,		1,895.44	30,272.66
			$46,839.39

TABLE No. IV.

DIVINITY SCHOOL.

RECEIPTS.

Income of the following Funds applicable to Salaries.		
Divinity School, balance,	$1,483.92	
Benjamin Bussey Professorship,	1,935.58	
Parkman Professorship,	824.82	
John Hancock Professorship,	309.41	
Winn Professorship of Ecclesiastical History,	2,515.57	
Samuel Dexter,	1,044.42	
Henry Lienow,	473.03	
Mary P. Townsend,	270.37	
Amount carried forward,	$8,857.12	

TABLE IV., CONTINUED.

RECEIPTS.

Amount brought forward,	$8,857.12	
Winthrop Ward,	108.15	
Samuel Hoar,	54.07	
Abraham W. Fuller,	54.07	
Caroline Merriam,	54.07	
Joseph Baker,	405.56	
Thomas Tileston of New York Endowment,	2,060.00	
Oliver Ames,	875.50	
Henry P. Kidder,	515.00	
Abby Crocker Richmond,	51.50	
New Endowment,	3,678.49	
William B. Spooner Legacy,	515.00	$17,228.53
Income of Scholarship Funds.		
Jackson Foundation,	726.25	
Thomas Cary,	265.95	
George Chapman,	126.95	
Joshua Clapp,	210.22	
J. Henry Kendall,	242.36	
Nancy Kendall,	166.71	1,738.44
Income of other Funds.		
Joshua Clapp,	112.17	
William Pomroy,	54.07	
Hannah C. Andrews,	27.04	
Lewis Gould,	46.92	
Daniel Austin,	45.83	
Abner W. Buttrick,	668.93	
Adams Ayer,	51.50	
John W. Quinby,	70.19	
John L. Russell,	51.50	
Edwin Conant,	64.37	
Interest on Beneficiary money returned (balance),	136.01	1,328.53
Benjamin Bussey Trust (¼ of net income for use of this School),		3,224.87
Sale of duplicate books, &c.,		70.30
Term Bills.		
For instruction,	2,708.82	
For rents,	2,920.00	5,623.82
		$29,214.49

PAYMENTS

For Salaries for instruction,	$19,392.32	
Services and wages,	2,373.74	
Labor, repairs, and improvements,	733.42	
Cleaning and care of rooms,	1,374.72	
Books and binding,	573.83	
Printing,	59.75	
Amount carried forward,	$24,507.78	

TABLE IV., CONTINUED.

PAYMENTS.

Amount brought forward, ...	$24,507.78	
Fuel, gas, and water, ...	676.11	
Stationery, postage, diplomas, and sundries, . . .	119.35	
Collation, ...	85.00	
Furniture, ...	39.70	
Proportion of expenses of Gymnasium, ...	157.48	
Advertising, ...	96.76	$25,682.18
Paid the incumbents of the following Scholarships.		
Jackson Foundation, ...	640.00	
Thomas Cary, ...	240.00	
George Chapman, ...	66.66	
Joshua Clapp, ...	125.00	
Nancy Kendall, ...	93.34	
J. Henry Kendall, ...	140.00	1,305.00
Paid beneficiaries from the following Funds:		
Abner W. Buttrick, ...	580.00	
William Pomroy, ...	50.00	630.00
		$27,617.18

TABLE No. V.

LAW SCHOOL.

RECEIPTS.

Income of the following Funds.		
Law School, balance, ...	$2,274.70	
Nathan Dane Professorship, ...	811.12	
Benjamin Bussey "	1,234.97	
Isaac Royall "	429.56	
New Professorship, ...	4,892.24	
Law School Book Fund, ...	2,421.58	
Benjamin Bussey Trust (¼ of net income for use of this School), ...	3,224.87	$15,289.04
Term Bills.		
For instruction, ...		53,100.00
Anonymous gift for instruction in the Peculiarities of Massachusetts Law, ...		1,000.00
Sale of duplicate books, ...		3.00
Repayment of Scholarship money with interest, ...		160.00
		$69,552.04

PAYMENTS.

For Salaries for instruction, ...	$30,050.00	
Librarian and Assistants, ...	4,685.23	
Janitors, cleaning, &c., ...	1,065.30	
Books and binding, ...	4,741.34	
Fuel, ...	853.92	
Amount carried forward, ...	$41,395.79	

TABLE V., CONTINUED.

PAYMENTS.

Amount brought forward, ...	$41,395.79	
Gas, ...	926.25	
Printing	689.35	
Scholarships, ...	1,650.00	
Labor, repairs, and improvements, ...	2,555.99	
Stationery and postage, ...	189.11	
Freight, diplomas, and sundries, ...	381.12	
Water rates, ...	115.50	
Furniture, ...	1,545.50	
Services of examiners and proctors, ...	148.75	
Proportion of expenses of Gymnasium, ...	1,465.54	
Advertising, ...	15.00	$51,077.90

TABLE NO. VI.

MEDICAL SCHOOL.

RECEIPTS.

Income of the following Funds.		
Medical School, balance, ...	$3,266.64	
Jackson, ...	988.44	
Warren, for Anatomical Museum, ...	695.66	
Ward Nicholas Boylston, for Medical Prizes, .	177.16	
Ward Nicholas Boylston, for Medical Books,	185.09	
George C. Shattuck, ...	882.14	
Hersey Professorship, ⅔ income of the fund, . .	416.47	
Medical Library Fund, ...	96.92	
Quincy Tufts, ...	103.00	
David Williams Cheever Scholarship, ...	270.89	
George Cheyne Shattuck Memorial Fellowship,	260.80	
John Ware " "	260.80	
Charles Eliot Ware " "	260.80	
Edward M. Barringer, ...	1,313.92	
Henry Harris, ½ of income, ...	770.93	
Mary W. Swett, ...	811.90	
Samuel W. Swett, ...	1,030.00	
Samuel E. Fitz, ...	94.55	
J. Ingersoll Bowditch, ...	322.49	
New subscription, ...	1,529.96	
Ellis Gift (balance), ...	128.91	
John Foster, income for Medical Students every second year, ...	163.36	$14,030.83
Gifts for present use, ...		1,500.00
Amount carried forward, ...		$15,530.83

TABLE VI., CONTINUED.

RECEIPTS.

Amount brought forward, ...		$15,530.83
Term Bills.		
For instruction, ...	$76,999.19	
For graduation fees, ...	2,610.00	
In Chemical Laboratory, breakage and chemicals,	1,245.13	
In Practical Anatomy, for use of material, . . .	982.00	
For extra examination fees, &c., ...	149.45	81,985.77
From Dental and Veterinary Schools for Laboratory instruction, ...		684.00
Repayment of advances for the purchase of microscopes,		226.00
Use of lecture room by Medical Society, . . . $30.00		
" " laboratory by State of Massachusetts, . 300.00		330.00
Sale of old material, ...		9.50
		$98,766.10

PAYMENTS.

Boylston Medical Prizes.		
Advertising, ...		$72.40
Warren Anatomical Museum.		
Expenses and additions to collection, ...		381.15
Edward M. Barringer Scholarship No. 1, . $300.00		
" " 2, . 200.00	$500.00	
David Williams Cheever Scholarship, ...	200.00	
John Ware Memorial Fellowship, ...	168.75	
Charles Eliot Ware Memorial Fellowship, ...	168.75	
Faculty Scholarships, ...	800.00	
Beneficiaries from **Foster** income, ...	25.00	
Other Beneficiaries, ...	200.00	2,062.50
J. Ingersoll Bowditch F'd, Physiolog'l apparatus, &c.,		191.31
Ellis Gift, Expenses in Physiological Laboratory, . . .		446.25
Chemical Laboratory, ...	1,256.78	
Physiological Laboratory, ...	400.00	
Anatomy, ...	1,750.00	
Pathological Laboratory, ...	150.00	
Bacteriological Laboratory, ...	303.00	
Obstetrics, ...	300.00	
Histology and Embryology, ...	338.00	
Bandaging and apparatus, ...	100.00	
Therapeutics and Hygiene, ...	150.00	
Gynaecology, ...	25.00	
Salaries for instruction, ...	47,212.00	
Repairs and improvements, ...	2,189.77	
Microscopes and repairing, ...	414.26	54,588.81
Graduates courses, fees repaid to Instructors, ...	1,260.00	
Summer " " " " "	1,817.50	3,077.50
General Expenses.		
Advertising and catalogues, ...	1,000.00	
Books, from Library Fund, ...	123.25	
Amounts carried forward, ...	$1,123.25	$60,819.92

Table VI., continued.

PAYMENTS.

Amounts brought forward,	$1,123.25	$60,819.92
General Expenses.		
Fuel,	1,780.42	
Gas,	1,008.80	
Insurance,	37.50	
Printing,	544.73	
Services and wages,	2,969.73	
Stationery and postage,	372.88	
Water rates,	511.20	
Furniture,	409.40	
Janitors and cleaning,	3,595.77	
Freight, diplomas, and sundries,	346.09	
Supplies, tools, and material,	543.96	
Instruments and apparatus,	210.00	13,453.73
		$74,273.65

Table No. VII.

DENTAL SCHOOL.

RECEIPTS.

Income of the following Funds.		
Dental School, balance,	$196.58	
Endowment,	783.11	$979.69
Term Bills, for instruction,		8,246.67
Fees from Infirmary,	3,472.65	
" " Laboratory,	1,714.75	5,187.40
Gifts for present use,		130.00
		$14,543.76

PAYMENTS.

Advertising and catalogues,	$400.51	
Care of rooms and cleaning,	1,084.18	
Freight, diplomas, and sundries,	529.20	
Fuel,	317.07	
Gas,	122.72	
Supplies, apparatus, &c.,	2,623.55	
Furniture,	776.16	
Repairs and improvements,	282.43	
Salaries for instruction,	4,950.00	
Stationery and postage,	97.39	
Water rates,	153.70	
Medical School, for Laboratory instruction,	342.00	$11,678.91

Table No. VIII.

LAWRENCE SCIENTIFIC SCHOOL, AND MUSEUM OF COMPARATIVE ZOÖLOGY.

RECEIPTS.

Income of the following Funds.			
Lawrence Scientific School, balance		$390.88	
Professorship of Engineering,		1,998.56	
Abbott Lawrence,		3,169.10	
James Lawrence,		2,594.31	
John B. Barringer,		1,580.38	
Gray Fund for Zoölogical Museum,		2,575.00	
Sturgis Hooper,		5,150.00	
Agassiz Memorial. Interest,	$14,101.68		
From special investment,	1,205.69	15,307.37	
Teachers and Pupils,		391.09	
Humboldt,		398.66	
Permanent Fund for Museum of Zoölogy,		6,049.65	$39,605.00
Gift of Mrs. **Benjamin S. Rotch** to build and equip an electrical engineering workshop, interest on balance,			143.54
Term Bills, for instruction,			19,171.35
Unexpended appropriations returned,			419.17
			$59,339.66

PAYMENTS.

Paid on the order of the Faculty of the Museum of Comparative Zoölogy, from the following Funds.			
Gray,		$2,575.00	
Agassiz Memorial, general expenses,		13,507.31	
Agassiz Memorial, advances repaid,		1,800.06	
Teachers and Pupils,		391.09	
Humboldt,		398.66	
Permanent,		6,049.65	
Sturgis Hooper, Professor of Geology,		5,150.00	$29,871.77
Salaries for instruction,		16,224.10	
Instruments and apparatus,		199.83	
Books and binding,		245.40	
Printing,		637.05	
Fuel,		349.85	
Gas, water, freight, and sundries,		214.06	
Janitor and cleaning,		318.00	
Labor and repairs,		1,442.00	
Expenses Chemical Laboratory (part of),		122.53	
Scholarships,		2,150.00	
Proportion of expenses of Gymnasium,		476.40	
Furniture,		252.05	
Advertising,		205.20	
Stationery and postage,		573.49	
Services and wages,		462.28	
Fitting up Physiological Laboratory,		1,000.00	
Building and equipping the **Rotch** electrical workshop,		11,106.70	35,978.94
			$65,850.71

Table No. IX.

OBSERVATORY.

RECEIPTS.

Income of the following Funds.		
Edward B. Phillips,	$5,680.14	
James Hayward,	1,081.50	
Robert Treat Paine,	6,185.66	
Paine Professorship of Practical Astronomy,	2,575.00	
Uriah A. Boyden,	10,877.98	
Augustus Story,	689.07	
David Sears,	1,451.98	
Josiah Quincy,	589.01	
James Savage (¼ of net income),	465.75	
Charlotte Harris,	103.00	
Thomas G. Appleton,	257.50	
J. Ingersoll Bowditch,	128.75	
New Endowment,	2,575.00	$32,663.34
From sale of time signals,	2,327.29	
" " " Observatory publications,	114.70	
" " " grass,	20.00	2,461.99
Mrs. Henry Draper, gift for special research (additional),	10,000.00	
Interest on unexpended balance,	47.84	10,047.84
Miss Catherine W. Bruce's gift for a photographic telescope, interest on unexpended balance,		1,511.18
Subscriptions towards the construction of a fire-proof building,	4,500.00	
Interest on balance,	145.19	4,645.19
From A. Lawrence Rotch, on account of repayment of expenses of publishing the Blue Hill observations,		500.00
From Miss Catherine W. Bruce, for the publication of certain observations,		500 00
Use of house by College officer,		600.00
		$52,929.54

PAYMENTS.

From Uriah A. Boyden Fund, supplies, apparatus, services, &c.,		$8,169.60
" **Draper** Memorial, supplies, apparatus, services, &c.,		9,629.77
" **Bruce** gift for telescope,		13,014.70
" **Josiah Quincy** Fund, printing Observatory public'ns,		572.00
" subscriptions for a fire-proof building,		313.22
Salaries and wages,	$17,196.84	
Cleaning and care of Observatory,	378.96	
Gas,	157.05	
Instruments and apparatus, including repairs on same,	1,187.12	
Repairs and improvements on buildings and grounds,	2,016.64	
Amounts carried forward,	$20,936.61	$31,699.29

Table IX., continued.

PAYMENTS.

Amounts brought forward	$20,936.61	$31,699.29
Stationery, postage, and telegraphing,	442.55	
Fuel,	157.35	
Books and binding,	476.44	
Water rates,	54.60	
Printing,	1,586.38	
Freight, chemicals, and sundries,	367.61	
Furniture,	98.88	
Interest on advances,	183.82	
Supplies and materials,	603.31	
Rent of house,	90.00	
Insurance,	16.26	25,013.81
		$56,713.10

Table No. X.

BUSSEY INSTITUTION.

RECEIPTS.

Interest on unexpended balance,	$608.98	
From Bussey Trust (½ net income),	6,449.75	
From Bussey Building Fund,	31.36	
Fees for instruction,	1,246.00	
Sale of wood, hay, and sundries,	989.90	
Horticultural Department, sale of flowers and plants,	1,845.10	
Board of horses, cattle, &c.,	2,058.87	$13,229.96

PAYMENTS.

For Salaries,	$6,600.00	
Books,	25.36	
Fuel for school building,	62.90	
Services and wages,	2,448.56	
Horticultural Department, expenses,	2,032.45	
Repairs and improvements,	328.87	
Grain, farming tools, &c.,	762.22	
Advertising,	49.01	
Freight, telegrams, weighing hay, &c.,	44.63	$12,354.00

James Arnold Fund.

Receipts.

Income of Fund,	$7,995.82

Payments.

19/20 of income carried to Arnold Arboretum,	$7,595.56

TABLE X., CONTINUED.

Arnold Arboretum.

Receipts.

Income of unexpended balance,			$228.85	
From **James Arnold** Fund,			7,595.56	
Sale of wood, grass, &c.,			2,049.82	
Rent of barn,			40.00	
H. H. Hunnewell, gift for a Museum and Library building,		$30,286.51		
Interest on same,		48.85	30,335.36	
Subscriptions for present use,		11,333.33		
Interest on same,		80.33	11,413.66	$51,662.75

Payments.

Salary of Director and Assistant,		$3,500.00	
Expenses of Arboretum, services, labor, &c.,		15,260.52	
Specimens and expenses for Herbarium and Museum,		171.96	
New Museum and Library building,		30,934.10	$49,866.58

TABLE NO. XI.

SCHOOL OF VETERINARY MEDICINE.

RECEIPTS.

Term bills, for instruction,		$3,243.00	
" " " graduation fees,		180.00	
" " " use of microscopes,		8.00	$3,431.00
Subscribers to Veterinary Hospital,			1,090.00
Fees from Hospital and Forge,			18,457.45
Interest on deposit with New England Trust Co.,			19.29
			$22,997.74

PAYMENTS.

Salaries and wages,		$14,245.19	
Instruments and apparatus,		50.73	
Rent,		1,280.00	
Hay, grain, supplies, &c.,		6,081.74	
Printing,		164.88	
Stationery, postage, telephone, &c.,		486.94	
Repairs and improvements,		567.44	
Fuel,		239.87	
Water,		44.20	
Gas,		462.91	
Freight, diplomas, and sundries,		173.85	
Taxes,		253.26	
Interest on advances,		991.14	
Advertising and catalogues,		168.30	
Medical School for Laboratory instruction,		342.00	
Legal expenses,		20.00	
Furniture,		46.70	
Books,		18.30	$25,637.45

Table No. XII.

MISCELLANEOUS FUNDS.

Bussey Trust.

Receipts.

Net income from Real Estate,	$19,008.80

Payments.

Annuities,	$6,109.31	
One-half of the remaining income to Bussey Institution,	6,449.75	
One-quarter " " " Divinity School,	3,224.87	
" " " " " Law School,	3,224.87	$19,008.80

Gray Fund for Engravings.

Receipts.

Interest on Fund,	$823.85

Payments.

To the Treasurer of the Museum of Fine Arts,	$823.85

Annuity Funds.

Receipts.

Gore, interest,	$1,285.54	
Lucy Osgood, interest,	250.70	
Bemis, interest,	2,615.68	
George William Sawin, income of special investment,	120.00	$4,271.92

Payments.

Gore, annuity,	$300.00	
Lucy Osgood, annuity,	420.00	
Bemis, annuity,	2,560.64	
George William Sawin, annuity,	120.00	$3,400.64

Price Greenleaf Fund.

Receipts.

Income of special investment,	$36,310.17

Payments.

Scholarships,	$3,000.00	
Beneficiary money transferred to College account,	16,655.09	
Balance of income for Library expenses,	16,655.08	$36,310.17

Table XII., continued.

Daniel Williams Fund.

Receipts.

Interest on Fund,		$845.99

Payments.

Treasurer of Mashpee Indians,	$541.26	
" " Herring Pond Indians,	283.85	$825.11

Sarah Winslow Fund.

Receipts.

Interest on Fund,		$247.82

Payments.

Minister at Tyngsborough, Mass.,	$120.58	
Teacher at " "	120.58	
Commission on income credited to University,	6.19	$247.35

Class Funds.

Receipts.

Class of 1834, income of special investment,	$40.00	
" " 1853, " " " "	145.00	$185.00

Payments.

To Secretary of the Class of 1834,	$40.00	
" " " " " " 1853,	145.00	$185.00

Huntington Frothingham Wolcott Fund.

Receipts.

Interest on Fund,	$518.30

Payments.

Treasurer of the Peabody Museum of American Archaeology and Ethnology,	$500.00

John Witt Randall Fund.

Receipts.

Interest on Fund,	$321.87

Payments.

Sundry expenses,	$47.35

TABLE XII., CONTINUED.

Sundry Accounts.

Receipts.

Gospel Church Fund (accumulating).		
Interest on Fund, ...	$205.28	
Robert Troup Paine Fund (accumulating).		
From special investment, ...	1,675.00	
Charles L. Hancock Bequest, Interest, ...	1,464.87	
Advances to Observatory, from general investments, . .	571.96	
" " Botanic Dept. " " "	345.28	
" " Sch. of Vet'y Med., " "	2,639.71	
Gains and Losses for General Investments, from gain on R. R. bonds sold, ...	28,660.50	$35,562.60

Payments.

Gurney annuities, ...	1,000.00	
Price Greenleaf Fund, loss from change of special investment, ...	390.00	$1,390.00

GENERAL SUMMARY OF THE TABLES.

			Receipts.	Payments.
Table	I.	University,	$72,964.46	$78,376.57
Table	II.	College,	443,883.75	408,262.65
Table	III.	Library,	41,733.53	46,839.39
Table	IV.	Divinity School,	29,214.49	27,617.18
Table	V.	Law School,	69,552.04	51,077.90
Table	VI.	Medical School,	98,766.10	74,273.65
Table	VII.	Dental School,	14,543.76	11,678.91
Table	VIII.	Lawrence Scientific School and Museum of Comparative Zoölogy,	59,339.66	65,850.71
Table	IX.	Observatory,	52,929.54	56,713.10
Table	X.	Bussey Institution,	13,229.96	12,854.00
		James Arnold Fund,	7,995.32	7,595.56
		Arnold Arboretum,	51,662.75	49,866.58
Table	XI.	School of Veterinary Medicine,	22,997.74	25,637.45
Table	XII.	Bussey Trust,	19,008.80	19,008.80
		Gray Fund for Engravings,	823.85	823.85
		Annuity Funds,	4,271.92	3,400.64
		Price Greenleaf Fund,	36,310.17	36,310.17
		Daniel Williams Fund,	845.99	825.11
		Sarah Winslow Fund,	247.82	247.35
		Class Funds,	185.00	185.00
		Huntington Frothingham Wolcott Fund,	518.30	500.00
		John Witt Randall Fund,	321.87	47.35
		Sundry Accounts,	35,562.60	1,390.00
			$1,076,909.42	$978,881.92
			978,881.92	
		Balance,	$98,027.50	

Which is the net increase of the Funds and balances, excluding gifts for capital account, as also shown on page 31.